

## **2004 Chevrolet S10 Pickup**

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

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#### **Roof - Blazer/S-10, Jimmy/Sonoma**

## **SPECIFICATIONS**

### **FASTENER TIGHTENING SPECIFICATIONS (CF5)**

#### **Fastener Tightening Specifications (CF5)**

<b>Application</b>	<b>Specification</b>	
	<b>Metric</b>	<b>English</b>
Crossrail to Slider Screws	1.9 N.m	17 lb in
End Support to Roof Screws	2.8 N.m	25 lb in
Side Rail Support Screws	1.9 N.m	17 lb in
Sunroof Assembly Bolts	9 N.m	80 lb in
Sunroof Glass Screws	3.5 N.m	31 lb in
Sunroof Motor Screws	3.5 N.m	31 lb in

### **FASTENER TIGHTENING SPECIFICATIONS (ZRX/XTREME W/ CF5)**

#### **Fastener Tightening Specifications (ZRX/XTREME w/ CF5)**

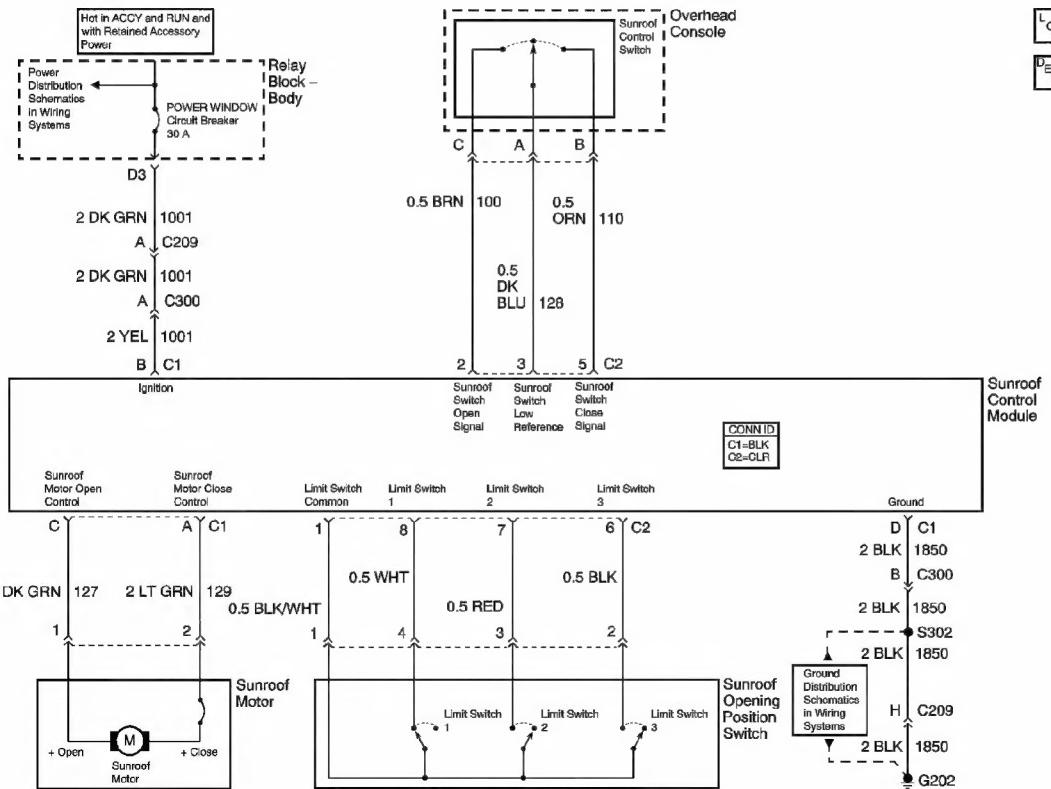
<b>Application</b>	<b>Specification</b>	
	<b>Metric</b>	<b>English</b>
Sunroof Lower Frame to Upper Frame Assembly Attachment Screws	1.5 N.m	13 lb in
Sunroof Motor/Actuator Garnish Trim Cover Screw	1.5 N.m	13 lb in
Sunroof Motor/Actuator Screws	4.0 N.m	35 lb in
Sunroof Panel Window Garnish Molding Screws	1.5 N.m	13 lb in
Sunroof Switch Ground Wire Screw	1.5 N.m	13 lb in
Sunroof Track Assembly to Upper Frame	4.0 N.m	35 lb in
Sunroof Window Screws to Track Assembly	4.0 N.m	35 lb in

## **SCHEMATIC AND ROUTING DIAGRAMS**

### **POWER SUNROOF SCHEMATICS (W/O ZRX/XTREME)**

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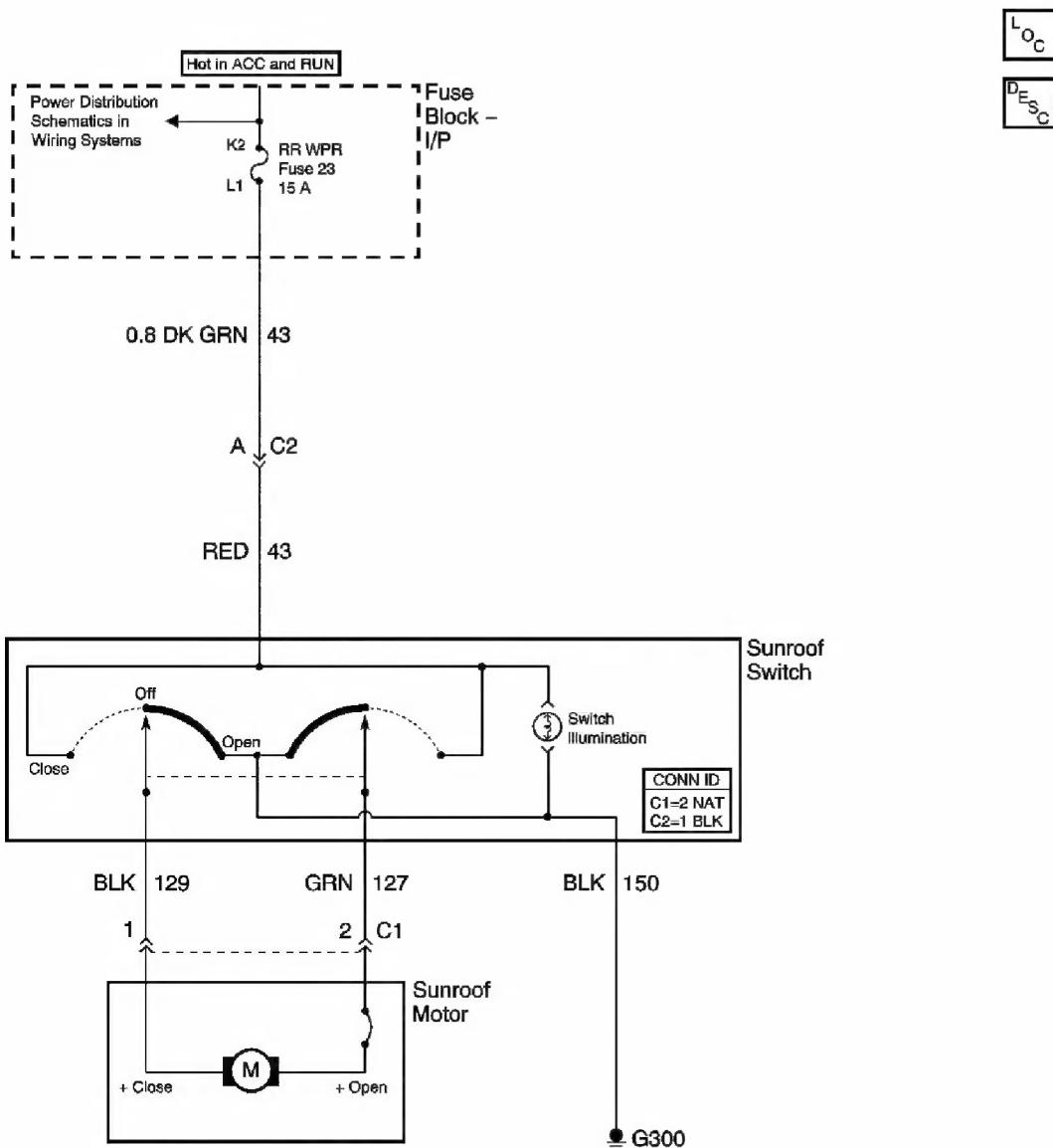


**Fig. 1: Power Sunroof (w/o ZRX/Xtreme)**  
Courtesy of GENERAL MOTORS CORP.

### POWER SUNROOF SCHEMATICS (W/ZRX/XTREME)

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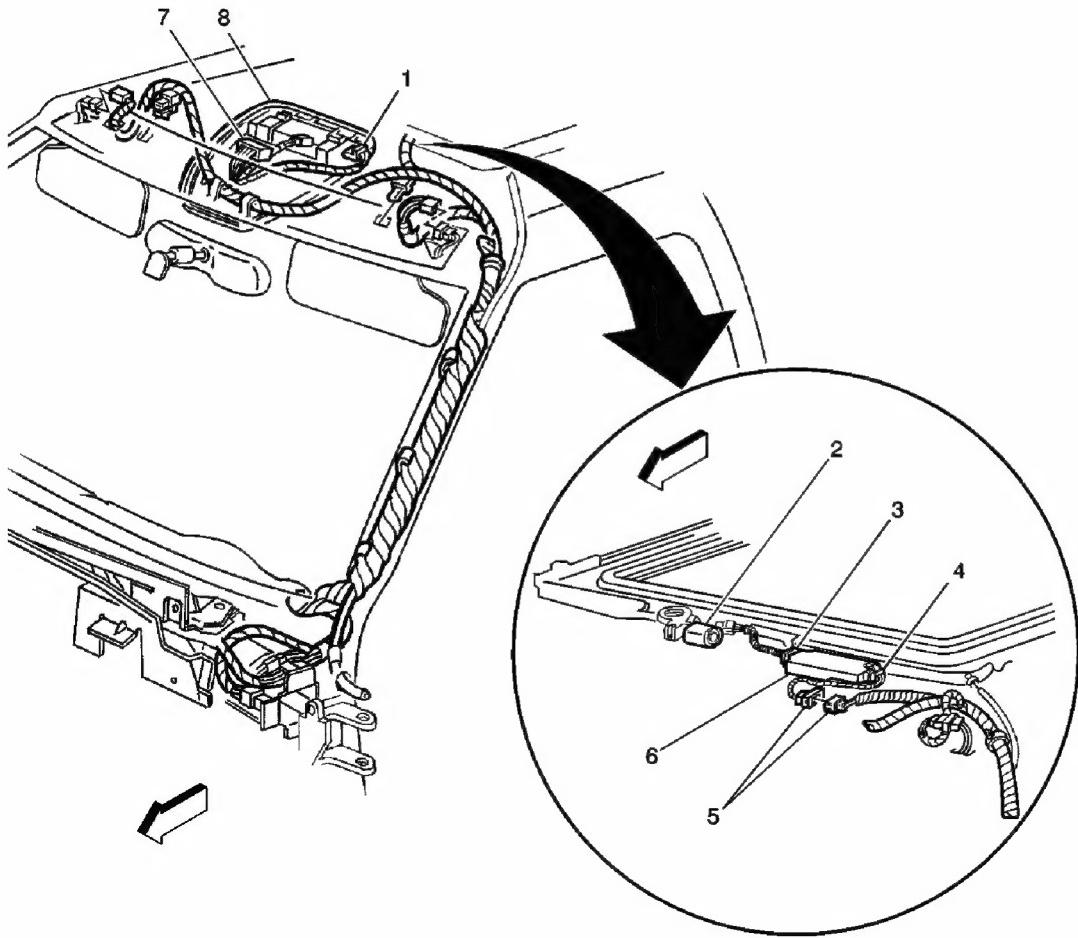
**Fig. 2: Power Sunroof (w/ZRX/Xtreme)**  
Courtesy of GENERAL MOTORS CORP.

## COMPONENT LOCATOR

POWER ROOF SYSTEMS COMPONENT VIEWS (W/O ZRX/XTREME)

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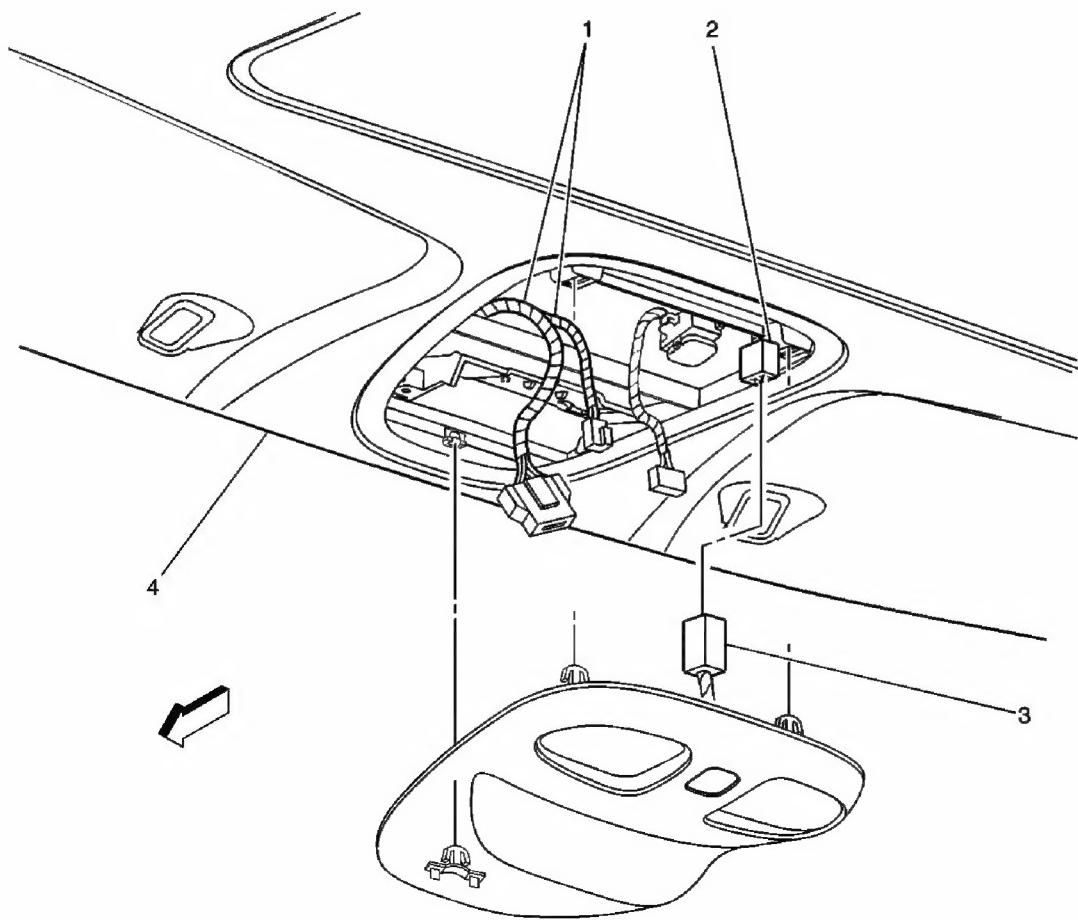
**Fig. 3: Sunroof Control Module and Motor**  
Courtesy of GENERAL MOTORS CORP.

### Callouts For Fig. 3

Callout	Component Name
1	Driver Information Center (DIC) C2
2	Sunroof Motor
3	Sunroof Control Module C2
4	Sunroof Control Module C1
5	C300
6	Sunroof Control Module
7	Driver Information Center (DIC) C1
8	Driver Information Center (DIC)

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**Fig. 4: Sunroof Switch**

Courtesy of GENERAL MOTORS CORP.

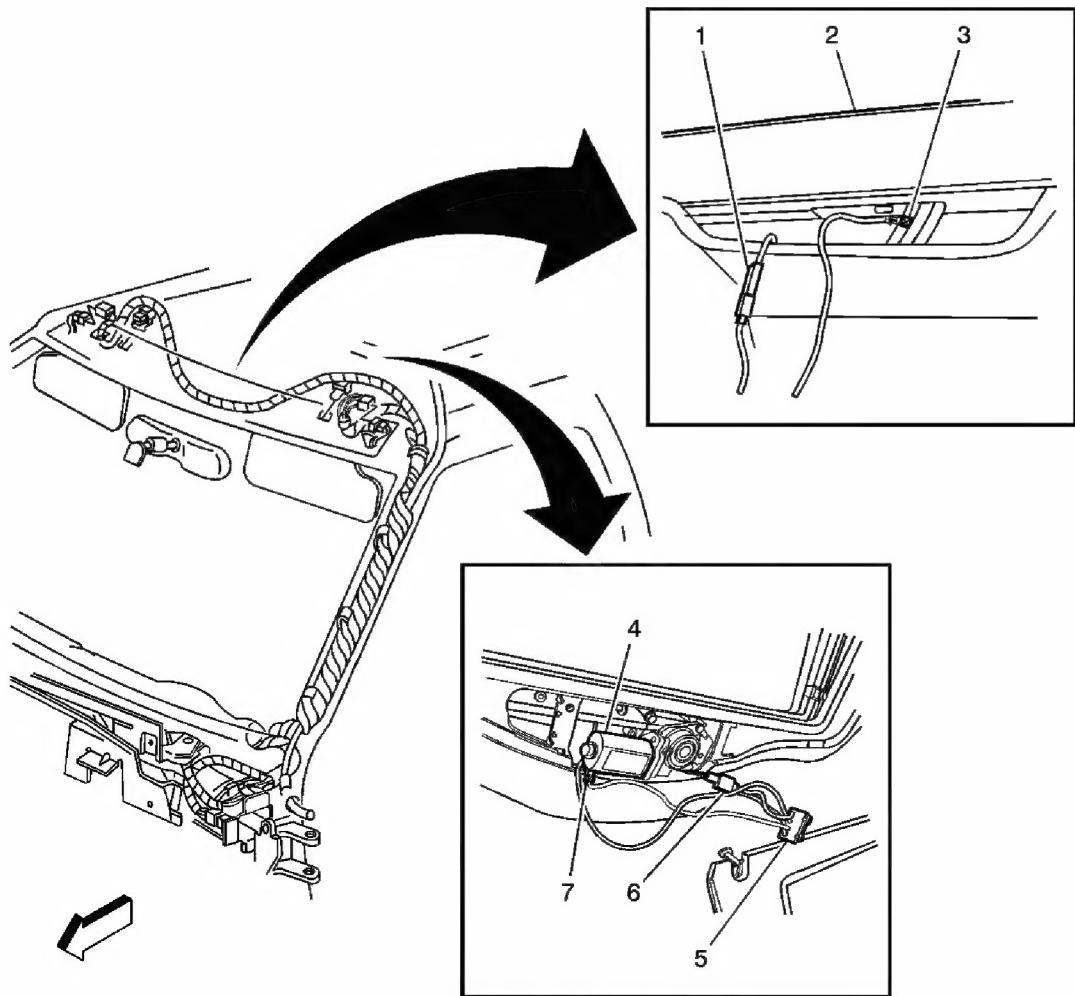
### Callouts For Fig. 4

Callout	Component Name
1	Dome Lamp Wiring Harness
2	Sunroof Connector
3	Sunroof Switch Connector
4	Roof Trim Panel

### POWER ROOF SYSTEMS COMPONENT VIEWS (W/ZRX/XTREME)

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**Fig. 5: Sunroof Components (ZRX, Extreme w/ CF5)**  
Courtesy of GENERAL MOTORS CORP.

### Callouts For Fig. 5

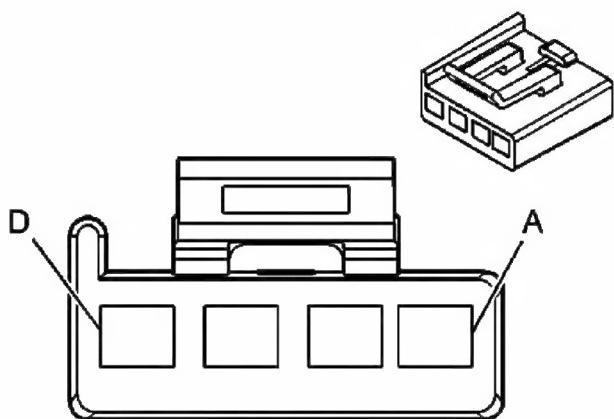
Callout	Component Name
1	Sunroof Switch C2
2	Sunroof Opening
3	G300
4	Sunroof Motor
5	Sunroof Switch
6	Sunroof Switch C1
7	Sunroof Ground Lead (G300)

### POWER ROOF SYSTEMS CONNECTOR END VIEWS (W/O ZRX/XTREME)

#### Sunroof Control Module C1

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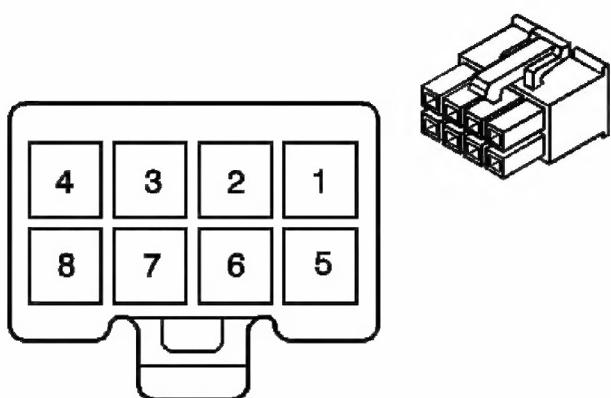


### Connector Part Information

- 12052856
- 4-Way F Metri-Pack 280 Series (BLK)

Pin	Wire Color	Circuit No.	Function
A	LT GRN	129	Sunroof Motor Close Control
B	YEL	1001	RAP Fuse Supply Voltage
C	DK GRN	127	Sunroof Motor Open Control
D	BLK	1850	Ground

### Sunroof Control Module C2



### Connector Part Information

- 3901-2080
- 8-Way F Molex (CLR)

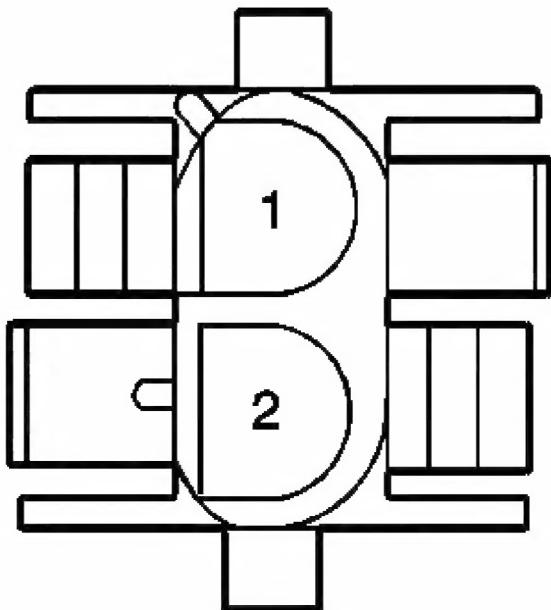
Pin	Wire Color	Circuit No.	Function
1	BLK/WHT	-	Limit Switch Common
2	BRN	-	Sunroof Switch Open Signal

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3	DK BLU	-	Sunroof Switch Low Reference
4	-	-	Not Used
5	ORN	-	Sunroof Switch Close Signal
6	BLK	-	Limit Switch 3
7	RED	-	Limit Switch 2
8	WHT	-	Limit Switch 1

### Sunroof Motor

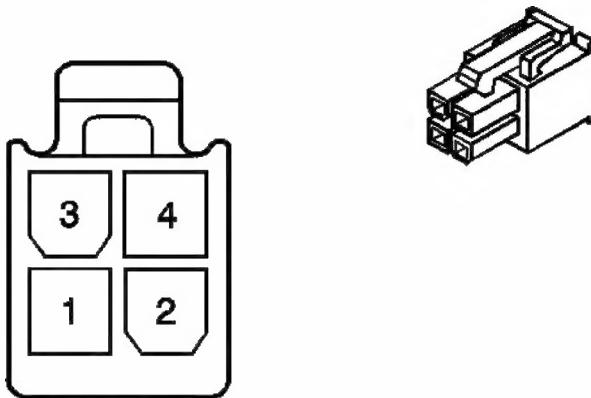


Connector Part Information		<ul style="list-style-type: none"><li>• 1-480698-0</li><li>• 2-Way F (NAT)</li></ul>	
Pin	Wire Color	Circuit No.	Function
1	DK GRN	127	Sunroof Motor Open Control
2	LT GRN	129	Sunroof Motor Close Control

### Sunroof Opening Position Switch

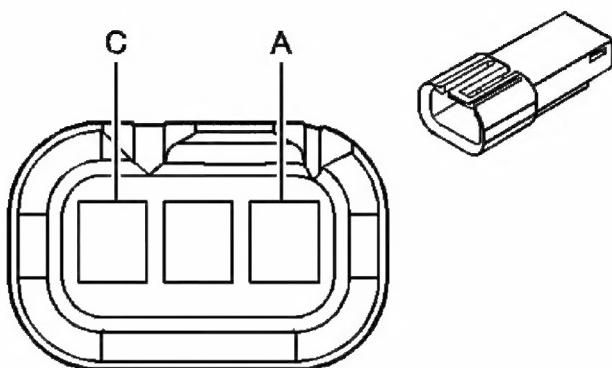
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Connector Part Information		<ul style="list-style-type: none"><li>• 39-01-2040</li><li>• 4-Way F (NAT)</li></ul>	
Pin	Wire Color	Circuit No.	Function
1	BLK/WHT	-	Limit Switch Common
2	BLK	-	Limit Switch 3
3	RED	-	Limit Switch 2
4	WHT	-	Limit Switch 1

### Sunroof Switch



Connector Part Information		<ul style="list-style-type: none"><li>• 12047782</li><li>• 3-Way M Metri-Pack 150 Series (BLK)</li></ul>	
Pin	Wire Color	Circuit No.	Function
A	DK BLU	128	Sunroof Switch Low Reference
B	ORN	110	Sunroof Switch Close Signal

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C

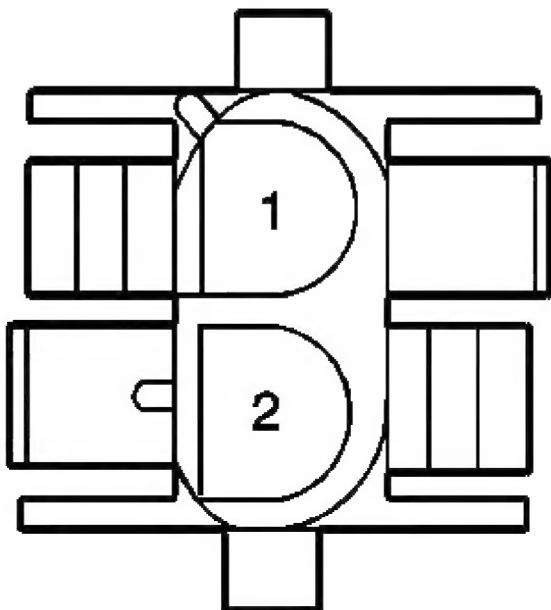
BRN

100

Sunroof Switch Open Signal

### POWER ROOF SYSTEMS CONNECTOR END VIEWS (W/ZRX/XTREME)

#### Sunroof Motor (Sunroof Switch C1)

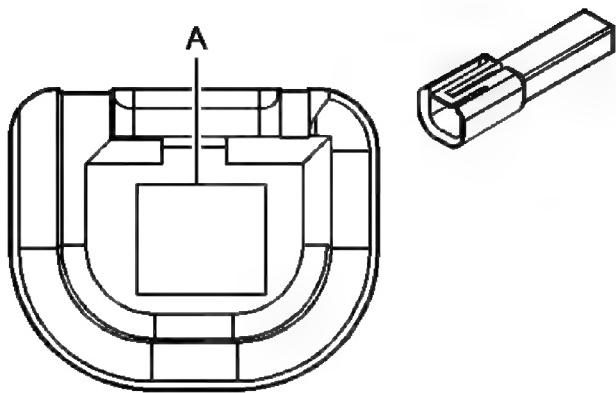


Connector Part Information		<ul style="list-style-type: none"><li>• 1-480698-0</li><li>• 2-Way F (NAT)</li></ul>	
Pin	Wire Color	Circuit No.	Function
1	DK GRN	127	Sunroof Motor Open Control
2	LT GRN	129	Sunroof Motor Close Control

#### Sunroof Switch C2

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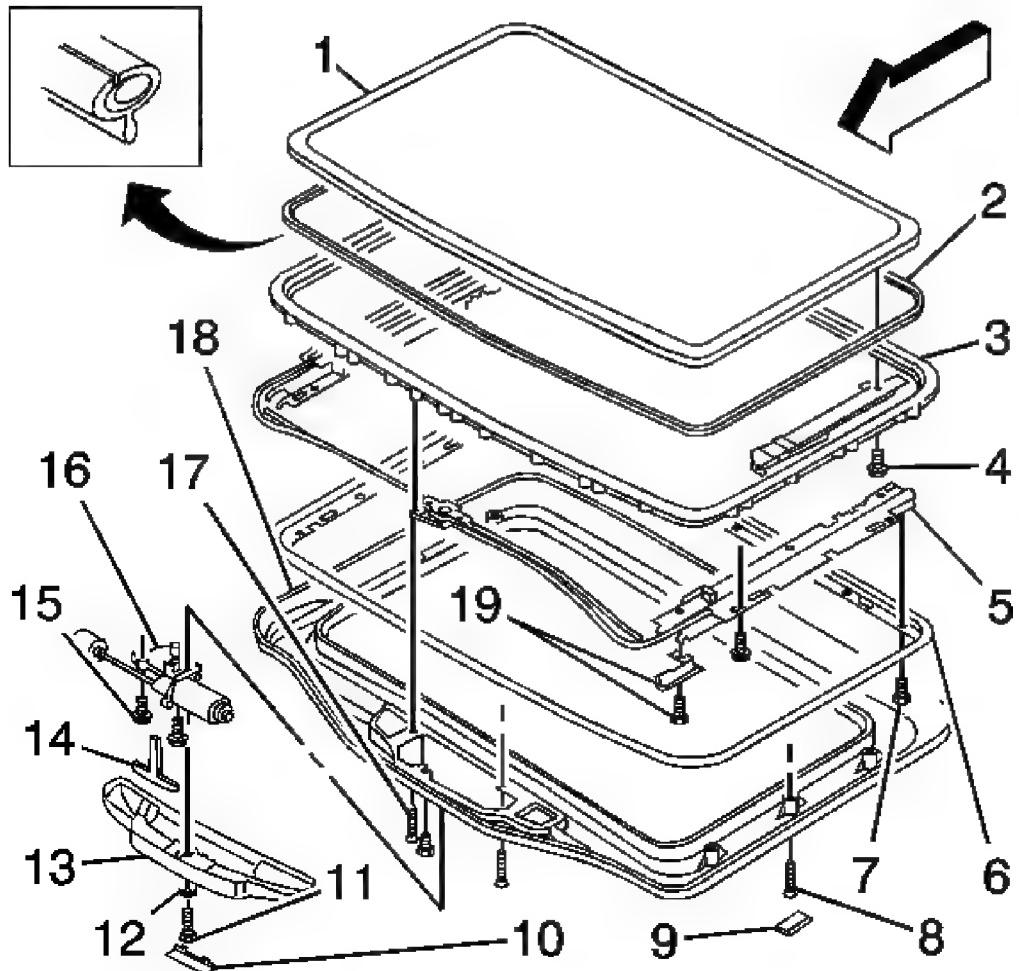


Connector Part Information		<ul style="list-style-type: none"><li>• 12047683</li><li>• 1-Way M Metri-Pack 150 Series (BLK)</li></ul>	
Pin	Wire Color	Circuit No.	Function
A	DK GRN	1001	Ignition 1 Voltage

### POWER SUNROOF DISASSEMBLED VIEW (ZRX/XTREME)

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**Fig. 6: Sunroof Disassembled View**

Courtesy of GENERAL MOTORS CORP.

### Callouts For Fig. 6

Callout	Component Name
1	Sunroof Window
2	Sunroof Panel Window Seal
3	Sunroof Window Frame - Upper
4	Sunroof Window Frame Screws
5	Sunroof Window Front Track
6	Sunroof Frame - Lower
7	Sunroof Frame - Lower Fastener
8	Sunroof Garnish Molding Screw
9	Sunroof Window Bottom Seal
10	Sunroof Window Bottom Fastener
11	Sunroof Window Bottom Seal
12	Sunroof Window Bottom Fastener
13	Sunroof Window Bottom Seal
14	Sunroof Window Bottom Fastener
15	Sunroof Window Bottom Seal
16	Sunroof Window Bottom Fastener
17	Sunroof Window Bottom Seal
18	Sunroof Window Bottom Seal
19	Sunroof Window Bottom Seal

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9	Sunroof Garnish Molding Screw Cover
10	Sunroof Motor/Actuator Service Cover
11	Sunroof Motor/Actuator Cover Screw
12	Sunroof Motor/Actuator Fastener Washer
13	Sunroof Motor/Actuator Garnish Trim Cover
14	Sunroof Motor/Actuator Crank
15	Sunroof Motor/Actuator Screws
16	Sunroof Motor/Actuator
17	Sunroof Panel Window Garnish Molding Screws
18	Sunroof Panel Window Garnish Molding
19	Sunroof LH Lifter Arm

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DIAGNOSTIC STARTING POINT - ROOF

Begin the system diagnosis with the **Diagnostic System Check - Power Sunroof**. The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

### Symptoms

When no DTCs are present, begin symptom diagnosis by reviewing the **Sunroof Description and Operation (Before VIN 209983)** or **Sunroof Description and Operation (ZRX/XTREME)**. Reviewing the Description and Operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the Description and Operation information will also help you determine if the condition described by the customer is normal operation. Refer to the **Symptoms - Roof** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

### DIAGNOSTIC SYSTEM CHECK - POWER SUNROOF

#### Test Description

The number(s) below refer to the step number(s) on the diagnostic table.

**2:** Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified

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procedure will determine the particular condition.

**5:** The presence of DTCs which begin with "U" indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

**6:** The presence of either of these codes would indicate an internal module malfunction with the Body Control Module (BCM), inhibiting the operation of the sunroof.

**7:** The presence of either of these DTCs will inhibit the battery supply voltage to operate the sunroof system.

### Diagnostic System Check - Power Sunroof

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to Step 2	Go to <u>Scan Tool Does Not Power Up</u> in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the body control module (BCM).  Does the scan tool communicate with the BCM?	Go to Step 3	Go to <u>Scan Tool Does Not Communicate with Class 2 Device</u> in Data Link Communications
3	<b>IMPORTANT:</b> <b>The engine may start during the following step. Turn OFF the engine as soon as you have observed the Crank power mode.</b>  1. Access the Class 2 Power Mode in the Diagnostic Circuit Check on the scan tool. 2. Rotate the ignition switch through all positions while observing the ignition switch power mode parameter.  Does the ignition switch parameter reading match the ignition switch position for all switch positions?	Go to Step 4	Go to <u>Power Mode Mismatch</u> in Body Control
4	Select the BCM display DTCs function on the scan tool. Does the scan tool display any DTCs?	Go to Step 5	Go to <u>Symptoms - Roof</u>
	Does the scan tool display any DTCs which begin with a "U"?	Go to <u>Scan Tool Does Not</u>	

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5		<u>Communicate with Class 2 Device</u> in Data Link Communications	Go to Step 6
6	Does the scan tool display DTC B1000?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Body Control System	Go to Step 7
7	Does the scan tool display DTC B1477, or B1478?	Go to <u>Diagnostic Trouble Code (DTC) List</u> in Retained Accessory Power	Go to <u>Symptoms - Roof</u>

### SYMPTOMS - ROOF

**IMPORTANT: Complete the following steps before using the symptom tables.**

1. Perform Diagnostic System Check - Power Sunroof before using the Symptom Tables in order to verify that all of the following conditions are true:
  - No DTCs are set.
  - The control modules can communicate via the serial data link.
2. Review the system operation in order to learn the system functions. Refer to Sunroof Description and Operation (Before VIN 209983) or Sunroof Description and Operation (ZRX/XTREME).

#### Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Power Sunroof system. Refer to Checking Aftermarket Accessories in Wiring Systems.
- Inspect the accessible system components for obvious damage or for conditions which can cause the symptom.

#### Intermittent

Bad electrical connections or bad wiring may cause intermittent conditions. Refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems.

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### Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- **Power Sunroof Inoperative (Before VIN 209984) or Power Sunroof Inoperative (ZR/X/XTREME)**
- **Power Sunroof Does Not Open**
- **Power Sunroof Express Open Feature Inoperative**
- **Power Sunroof Does Not Open to Vent Position**
- If the sunroof continues to operate for more than 10 minutes after the ignition has been turned to OFF, refer to **Retained Accessory Power (RAP) On After Timeout** in Retained Accessory Power.

### POWER SUNROOF INOPERATIVE (BEFORE VIN 209984)

#### Test Description

The numbers below refer to the steps numbers on the diagnostic table.

**5:** Using a jumper wire to simulate operation of the sunroof to determine if the switch is at fault.

**13:** Disconnecting the sunroof opening position switch harness connector and shorting the sunroof limit switch LS1 circuit, the sunroof module thinks the glass is in the closed position, allowing any request from the sunroof switch to enable an output to the motor for testing.

**14:** When the sunroof module is at rest the sunroof motor open control and close control circuits are at ground potential. This step is testing for an output to drive the motor, when the sunroof module should be idle.

### Power Sunroof Inoperative (Before VIN 209984)

Step	Action	Value(s)	Yes	No
<b>Schematic Reference: <u>Power Sunroof Schematics (w/o ZRX/Xtreme)</u> <u>Power Sunroof Schematics (w/ZRX/Xtreme)</u></b>				
1	Did you perform A Diagnostic System Check - Power Sunroof?	-		<b>Go to Diagnostic System Check - Power Sunroof</b>
	Operate the power sunroof.		<b>Go to Step 2</b>	<b>Go to Testing</b>

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	Does the system operate normally?	-	<b>for <u>Intermittent Conditions and Poor Connections</u> in Wiring Systems</b>	Go to Step 3
2		-		
3	<ol style="list-style-type: none"> <li>1. Turn ON the ignition, with the engine OFF.</li> <li>2. Operate the LF window switch.</li> </ol> <p>Does the LF window operate?</p>	-	Go to Step 5	Go to Step 4
4	<p>Operate the radio. Does the radio operate?</p>	-		<b>Go to <u>Retained Accessory Power (RAP)</u> Inoperative in Retained Accessory Power</b>
5	<ol style="list-style-type: none"> <li>1. Remove the sunroof switch from the headliner.</li> <li>2. Disconnect the sunroof switch from the harness connector.</li> <li>3. Observing the position of the sunroof, try to operate the sunroof by connecting a fused jumper between the sunroof switch low reference circuit to either the sunroof switch open signal circuit and or to the sunroof switch close signal circuit.</li> </ol> <p>Does the sunroof operate normally?</p>	-	Go to Step 33	Go to Step 6
6	<ol style="list-style-type: none"> <li>1. Remove the jumper wire.</li> <li>2. Measure the reference voltage of the sunroof switch open signal circuit at the sunroof switch harness connector to a good ground.</li> </ol>	4.5-5.5 V		

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	Does the voltage measure near the specified value?		Go to Step 7	Go to Step 17
7	Measure the reference voltage of the sunroof switch close signal circuit at the sunroof switch harness connector to a good ground. Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 8	Go to Step 21
8	Measure the reference voltage of the sunroof switch close signal circuit and sunroof switch low reference circuit at the sunroof switch harness connector. Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 9	Go to Step 22
9	1. Disconnect the sunroof opening position switch harness connector.  2. Measure the reference voltage of the sunroof limit switch LS1 circuit at the sunroof opening position switch harness connector to a good ground.  Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 10	Go to Step 23
10	Measure the reference voltage of the sunroof limit switch LS2 circuit at the sunroof opening position switch harness connector to a good ground. Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 11	Go to Step 24
11	Measure the reference voltage of the sunroof limit switch LS3 circuit at the sunroof opening position switch harness connector to a good ground. Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 12	Go to Step 25
12	Measure the reference voltage between the sunroof limit switch LS3 circuit and the sunroof limit switch low reference circuit at the sunroof opening position switch harness	4.5-5.5 V		

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	connector. Does the voltage measure near the specified value?	Go to Step 13	Go to Step 26
13	<p><b>NOTE:</b></p> <p><b>Do not operate the sunroof glass past the full open or full vent positions. the sunroof opening position switch will be adjusted for testing purposes. The sunroof module will interpret the sunroof glass is in a position that will allow the sunroof motor to slide it in either direction. The sunroof module will not be able to track the sunroof glass movement. Operating the sunroof glass too far past the original soft stop full open or full vent positions will cause damage to the sunroof system and or the roof.</b></p> <ol style="list-style-type: none"><li>1. Reconnect the sunroof switch to the harness connector.</li><li>2. Connect a jumper between the sunroof limit switch LS1 circuit and the sunroof limit switch low reference circuit at the sunroof opening position switch harness connector.</li><li>3. Observing the position of the sunroof, operate the system by pressing the sunroof switch to slide the sunroof glass to the available positions, not exceeding the full vent or full open positions.</li></ol> <p>Does the sunroof glass slide as requested?</p>	-	
14	<ol style="list-style-type: none"><li>1. Wait 15 seconds.</li><li>2. Disconnect the sunroof motor harness connector.</li><li>3. Connect a test lamp between the sunroof motor open control and motor close control circuits at the sunroof motor harness connector, module side.</li></ol>	-	Go to Step 35 Go to Step 14
			Go to Step

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	Does the test lamp illuminate?		Go to Step 44	15
15	<ol style="list-style-type: none"> <li>Leave the test lamp between the sunroof motor control circuits.</li> <li>Press and hold the sunroof switch to the open position for 3 seconds.</li> </ol> <p>Did the test lamp illuminate?</p>	-	Go to Step 16	Go to Step 27
16	<ol style="list-style-type: none"> <li>Leave the test lamp between the sunroof motor control circuits.</li> <li>Press and hold the sunroof switch to the close position for 3 seconds.</li> </ol> <p>Did the test lamp illuminate?</p>	-	Go to Step 34	Go to Step 44
17	<p>Measure the reference voltage of the sunroof switch close signal circuit at the sunroof switch harness connector to a good ground.</p> <p>Does the voltage measure near the specified value?</p>	4.5-5.5 V	Go to Step 18	Go to Step 19
18	<p>Test the sunroof switch open signal circuit for an open, high resistance or a short to ground. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	-	Go to Step 45	Go to Step 36
19	<ol style="list-style-type: none"> <li>Disconnect the sunroof module harness connector that contains the RAP fuse supply voltage circuit.</li> <li>Measure the sunroof RAP fuse supply voltage circuit at the sunroof module harness connector to a good ground.</li> </ol> <p>Does the voltage measure near the specified value?</p>	B+	Go to Step 20	Go to Step 37
	Measure the voltage between the sunroof RAP fuse supply voltage circuit and the sunroof ground circuit			

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20	<p>at the sunroof module harness connector. Does the voltage measure near the specified value?</p>	B+	<p><b>Go to Step 36</b></p>	<b>Go to Step 38</b>
21	<p>Test the sunroof switch close signal circuit for an open, high resistance or a short to ground. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>
22	<p>Test the sunroof switch low reference circuit for an open or high resistance. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>
23	<p>Test the sunroof limit switch LS1 circuit for an open or high resistance. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>
24	<p>Test the sunroof limit switch LS2 circuit for an open or high resistance. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>
25	<p>Test the sunroof limit switch LS3 circuit for an open or high resistance. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>
26	<p>Test the sunroof limit switch low reference circuit for an open or high resistance. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?</p>	-	<p><b>Go to Step 45</b></p>	<b>Go to Step 36</b>

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	1. Connect the test lamp between the sunroof motor open control circuit and a good ground. 2. Press and hold the sunroof switch to the open position for 3 seconds.	-	Go to Step 29	Go to Step 28
27	Did the test lamp illuminate?			
28	Test the sunroof motor open control circuit for an open or high resistance. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 36
29	Test the sunroof motor close control circuit for an open or high resistance. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 36
30	1. Remove the POWER WINDOW circuit breaker. 2. Measure the voltage between the RAP relay switch supply voltage circuit at the circuit breaker and a good ground.  Does the voltage measure near the specified value?	B+	Go to Step 31	Go to Step 39
31	Test the sunroof RAP fuse supply voltage circuit for an open, high resistance or a short to ground. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 32
32	Inspect the POWER WINDOW circuit breaker for poor connections. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.	-		

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	Did you find and correct the condition?		Go to Step 45	Go to Step 40
33	Inspect for poor connections at the sunroof switch and harness connector. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 41
34	Inspect for poor connections at the sunroof motor and harness connector. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 42
35	Inspect for poor connections at the sunroof opening position switch and harness connector. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 43
36	Inspect for poor connections at the sunroof module and harness connector. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	Go to Step 44
37	Repair an open or high resistance in the sunroof RAP fuse supply voltage circuit. Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	-
38	Repair an open in the sunroof ground circuit. Refer to <b>Wiring Repairs</b> in Wiring Systems.	-		

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	Did you find and correct the condition?		Go to Step 45	-
39	Repair an open in the RAP relay switch supply voltage circuit. Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-	Go to Step 45	-
40	Replace the circuit breaker. Did you complete the repair?	-	Go to Step 45	-
41	Replace the sunroof switch. Refer to <b>Sunroof Switch Replacement (CF5)</b> <b>Sunroof Switch Replacement (ZRX/XTREME w/CF5)</b> . Did you complete the repair?	-	Go to Step 45	-
42	Replace the sunroof motor. Refer to <b>Sunroof Motor/Actuator Replacement (CF5) Sunroof Motor/Actuator Replacement (ZRX/XTREME w/ CF5)</b> . Did you complete the repair?	-	Go to Step 45	-
43	Replace sunroof opening position switch. Refer to <b>Sunroof Opening Position Switch Replacement</b> . Did you complete the repair?	-	Go to Step 45	-
44	Replace sunroof module. Refer to <b>Sunroof Control Module Replacement</b> . Did you complete the repair?	-	Go to Step 45	-
45	1. Remove any jumper wires. 2. Reconnect any connectors. 3. Operate the system in order to verify the repair.  Did you correct the condition?	-	System OK	Go to Step 3

### POWER SUNROOF INOPERATIVE (ZRX/XTREME)

#### Diagnostic Aids

If the power sunroof system fuse is open and a short to ground in the accessory voltage circuit is not detected, the fault could be a short to ground in one of the power sunroof control circuits. This would open the power sunroof system fuse when the sunroof switch is pressed.

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### Test Description

The numbers below refer to the step numbers on the diagnostic table.

**5:** This step tests the integrity of the battery positive voltage circuit not the fuse.

### Power Sunroof Inoperative (ZRX/XTREME)

Step	Action	Yes	No
<b>Schematic Reference:</b> <a href="#">Power Sunroof Schematics (w/o ZRX/Xtreme)</a> <b>Power Sunroof Schematics (w/ZRX/Xtreme)</b>			
<b>Connector End View Reference:</b> <a href="#">Power Roof Systems Connector End Views (w/o ZRX/XTREME)</a> <a href="#">Power Roof Systems Connector End Views (w/ZRX/Xtreme)</a>			
1	Did you review the Power Roof Description and Operation?	Go to Step 2	Go to <u>Symptoms - Roof</u>
2	Operate the power sunroof. Does the system operate normally?	Go to <u>Testing for Intermittent Conditions and Poor Connections in Wiring Systems</u>	Go to Step 3
3	<ol style="list-style-type: none"><li>1. Disconnect the sunroof switch from the harness connector.</li><li>2. Turn ON the ignition, with the engine OFF.</li><li>3. Probe the accessory voltage circuit of the sunroof switch harness connector with a test lamp that is connected to a good ground.</li></ol> Does the test lamp illuminate?		
4	Connect a test lamp between the accessory voltage circuit and the ground circuit of the sunroof switch harness connector. Does the test lamp illuminate?	Go to Step 7	Go to Step 13
5	Test the accessory voltage circuit of the sunroof switch for a short to ground or an open. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 6
	Probe each of the sunroof motor control circuits of the sunroof switch harness connector with a test lamp that is connected		

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6	<p>to battery positive voltage. Did the test lamp illuminate at any of the sunroof motor control circuits?</p>	<a href="#">Go to Step 10</a>	<a href="#">Go to Step 14</a>
7	<ol style="list-style-type: none"> <li>1. Connect the sunroof switch to the harness connector.</li> <li>2. Connect a test lamp between the sunroof motor open control circuit of the sunroof actuator motor harness connector and a good ground.</li> <li>3. Press the sunroof switch to the open position for 3 seconds.</li> </ol> <p>Did the test lamp illuminate?</p>	<a href="#">Go to Step 8</a>	<a href="#">Go to Step 11</a>
8	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the sunroof motor close control circuit of the sunroof actuator motor harness connector to a good ground.</li> <li>2. Press the sunroof switch to the close position for 3 seconds.</li> </ol> <p>Does the test lamp illuminate?</p>	<a href="#">Go to Step 9</a>	<a href="#">Go to Step 11</a>
9	<ol style="list-style-type: none"> <li>1. Connect a test lamp between the sunroof motor open and close control circuits of the sunroof actuator motor harness connector.</li> <li>2. Press the sunroof switch to the close position for 3 seconds.</li> </ol> <p>Does the test lamp illuminate?</p>	<a href="#">Go to Step 12</a>	<a href="#">Go to Step 14</a>
10	<p>Repair the short to ground in the sunroof motor/actuator control circuit(s). Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	<a href="#">Go to Step 17</a>	<a href="#">Go to Step 12</a>
11	<p>Repair the open in the sunroof motor control circuit. Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?</p>	<a href="#">Go to Step 17</a>	<a href="#">Go to Step 12</a>
12	<p>Inspect for poor connections at the harness connector of the sunroof actuator motor. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and</p>		

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	<b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 16
13	Repair the open in the sunroof switch ground circuit. Refer to <b>Wiring Repairs</b> in Wiring Systems. Did you complete the repair?	Go to Step 17	Go to Step 14
14	Inspect for poor connections at the harness connector of the sunroof switch. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 15
15	Replace the sunroof switch. Refer to <b>Sunroof Switch Replacement (CF5)</b> <b>Sunroof Switch Replacement (ZRX/XTREME w/CF5)</b> . Did you complete the replacement?	Go to Step 17	-
16	<b>IMPORTANT:</b> <b>Perform the sunroof motor synchronization procedure.</b> Refer to <b>Sunroof Motor/Actuator Synchronization (ZRX/XTREME w/ CF5)</b> . Replace the sunroof actuator motor. Refer to <b>Sunroof Motor/Actuator Replacement (CF5)</b> <b>Sunroof Motor/Actuator Replacement (ZRX/XTREME w/ CF5)</b> . Did you complete the replacement?	Go to Step 17	-
17	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Disconnect any jumper wires.</li> <li>3. Connect all previously disconnected components.</li> <li>4. Turn ON the ignition, with the engine OFF.</li> <li>5. Operate the system in order to verify the repair.</li> </ol> Did you correct the condition?	System OK	Go to Step 3

### POWER SUNROOF DOES NOT OPEN

#### Test Description

The number(s) below refer to the step number(s) on the diagnostic table.

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**2:** This step will test the if the sunroof will slide to the open position. If it opens, then inspect the sunroof limit switch LS2 for a stuck switch causing an intermittent short to ground.

**4:** Testing for a short to ground in the sunroof limit switch LS2 circuit or a stuck or closed limit switch.

### Power Sunroof Does Not Open

Step	Action	Value(s)	Yes	No
<b>Schematic Reference:</b> Power Sunroof Schematics (w/o ZRX/Xtreme) Power Sunroof Schematics (w/ZRX/Xtreme)				
DEFINITION: Sunroof only slides between the closed and vent positions, does not open.				
1	Did you perform A Diagnostic System Check - Power Sunroof?	-	Go to Step 2	Go to <u>Diagnostic System Check - Power Sunroof</u>
2	Operate the power sunroof to the open position. Does the system operate normally?	-	Go to <u>Testing for Intermittent Conditions and Poor Connections</u> in Wiring Systems	Go to Step 3
3	1. Turn the ignition ON, with the engine OFF. 2. Activate the sunroof switch to close the sunroof. 3. Measure the voltage between the sunroof limit switch LS2 circuit and the sunroof limit switch low reference circuit at the sunroof module harness connector.  Does the voltage measure near the specified value?	4.5-5.5 V	Go to Step 6	Go to Step 4
	1. Disconnect the sunroof opening position switch harness connector. 2. Test the sunroof limit switch			

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4	LS2 circuit for a short to ground. Refer to <b><u>Circuit Testing</u></b> and <b><u>Wiring Repairs</u></b> in Wiring Systems.  Did you find and correct the condition?	-	Go to Step 7	Go to Step 5
5	Replace the sunroof opening position switch. Refer to <b><u>Sunroof Opening Position Switch Replacement</u></b> .  Did you complete the replacement?	-	Go to Step 7	-
6	Replace the sunroof module. Refer to <b><u>Sunroof Control Module Replacement</u></b> .  Did you complete the replacement?	-	Go to Step 7	-
7	Operate the system in order to verify the repair.  Did you correct the condition?	-	System OK	Go to Step 3

### POWER SUNROOF EXPRESS OPEN FEATURE INOPERATIVE

#### Test Description

The number below refers to the step number on the diagnostic table.

**2:** This step will test the express open feature and if the feature is operating properly, then inspect the sunroof limit switch low reference circuit for an intermittent or poor connection.

#### Power Sunroof Express Open Feature Inoperative

Step	Action	Value(s)	Yes	No
<b>Schematic Reference:</b> <a href="#"><b>Power Sunroof Schematics (w/o ZRX/Xtreme)</b></a> <a href="#"><b>Power Sunroof Schematics (w/ZRX/Xtreme)</b></a>				
DEFINITION: Express open feature is disabled.				
1	Did you perform A Diagnostic System Check - Power Sunroof?	-	Go to Step 2	<a href="#"><b>Go to Diagnostic System Check - Power Sunroof</b></a>
	Operate the power sunroof express open feature.  Does the system operate normally?		<a href="#"><b>Go to Testing for Intermittent Conditions</b></a>	

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			<u>and Poor Connections in Wiring Systems</u>	
2		-		Go to Step 3
3	<p>1. Turn the ignition ON, with the engine OFF.</p> <p>2. Measure the voltage between the sunroof limit switch low reference circuit at the sunroof module harness connector and B+.</p> <p>Does the voltage measure near the specified value?</p>	B+		
4	<p>Inspect for a poor connection in the sunroof limit switch low reference circuit at the sunroof module. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	-		
5	<p>Test the sunroof limit switch low reference circuit for an open or high resistance. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	-		
6	<p>Inspect for a poor connection in the sunroof limit switch low reference circuit at the sunroof opening position switch. Refer to <b>Testing for Intermittent Conditions and Poor Connections</b> and <b>Connector Repairs</b> in Wiring Systems.</p> <p>Did you find and correct the condition?</p>	-		
7	<p>Replace the sunroof opening position switch. Refer to <b>Sunroof Opening Position Switch Replacement</b></p> <p>Did you complete the replacement?</p>	-		
			Go to Step 9	-

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8	Replace the sunroof module. Refer to <b><u>Sunroof Control Module Replacement</u></b> . Did you complete the replacement?	-	<b>Go to Step 9</b>	-
9	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	<b>Go to Step 3</b>

### POWER SUNROOF DOES NOT OPEN TO VENT POSITION

#### Test Description

The number(s) below refer to the step number(s) on the diagnostic table.

**2:** This step will test for an intermittent condition when testing if the sunroof will slide and soft stop at the vent position. If the sunroof operates properly to the full vent position, then inspect the sunroof limit switch LS1 for a stuck switch causing an intermittent short to ground.

**4:** Testing for a short to ground in the sunroof limit switch LS1 circuit or a stuck or closed limit switch.

#### Power Sunroof Does Not Open to Vent Position

Step	Action	Value(s)	Yes	No
<b>Schematic Reference: Power Sunroof Schematics (w/o ZRX/Xtreme) Power Sunroof Schematics (w/ZRX/Xtreme)</b>				
DEFINITION: Sunroof will slide to vent position, but it will not stop at the soft stop at the vent position. As the glass slides past the soft stop vent position the glass tends to shift out of alignment.				
1	Did you perform A Diagnostic System Check - Power Sunroof?	-	<b>Go to Step 2</b>	<b>Go to Diagnostic System Check - Power Sunroof</b>
2	Operate the power sunroof to the vent position. Does the system operate normally?	-	<b>Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems</b>	<b>Go to Step 3</b>
	1. Disconnect the sunroof opening			

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	position switch harness connector.			
3	2. Turn the ignition ON, with the engine OFF. 3. Measure the reference voltage between the sunroof limit switch LS1 circuit at the sunroof opening position switch harness connector to a good ground.	4.5-5.5 V		
	Does the voltage measure near the specified value?		Go to Step 5	Go to Step 4
4	Test the sunroof limit switch LS1 circuit for a short to ground. Refer to <b>Circuit Testing and Wiring Repairs</b> in Wiring Systems. Did you find and correct the condition?	-		
5	Replace the sunroof opening position switch harness connector. Refer to <b>Sunroof Opening Position Switch Replacement</b> . Did you complete the replacement?	-	Go to Step 7	Go to Step 6
6	Replace the sunroof module. Refer to <b>Sunroof Control Module Replacement</b> . Did you complete the replacement?	-		
7	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 3

## REPAIR INSTRUCTIONS

### SUNROOF MOTOR/ACTUATOR SYNCHRONIZATION (ZRX/XTREME W/ CF5)

#### Timing Procedure

1. Open the window at least 2 inches from the front of the sunroof. If the sunroof will not open, refer to **Sunroof Manual Operation (ZRX/XTREME w/ CF5)**.
2. Remove the motor. Refer to **Sunroof Motor/Actuator Replacement (CF5)** or **Sunroof Motor/Actuator Replacement (ZRX/XTREME w/ CF5)**.
3. Place your hands on the front edge of the window and gently push both sides to the full open position. Take care to move both sides of the window at the same time. Verify

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that the leading edge of the window panel is parallel with the rear edge of the sunroof mainframe.

4. Check the screws on the drive tube retainer plates (the gold colored screw located behind the motor block). If loose, check or re-insert the ends of the cable drive and return the tubes into place. Apply Loctite(R) Blue, GM P/N 12345382 (Canadian P/N 10953489) or equivalent, to the screw threads prior to installing the screw.
5. Install the motor. Refer to **Sunroof Motor/Actuator Replacement (CF5)** or **Sunroof Motor/Actuator Replacement (ZRX/XTREME w/ CF5)**.
6. Test the function of the sunroof through several cycles.

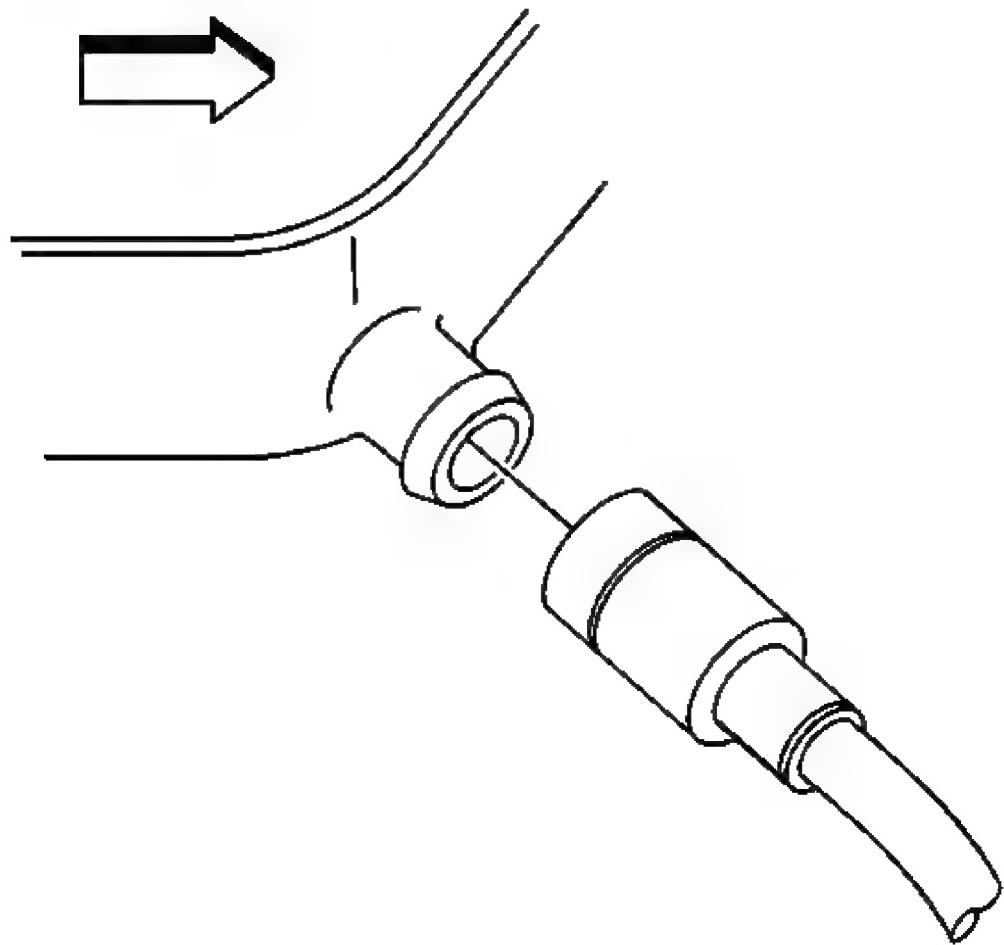
### **SUNROOF DRAIN HOSE REPLACEMENT - FRONT**

#### **Removal Procedure**

1. Remove the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.

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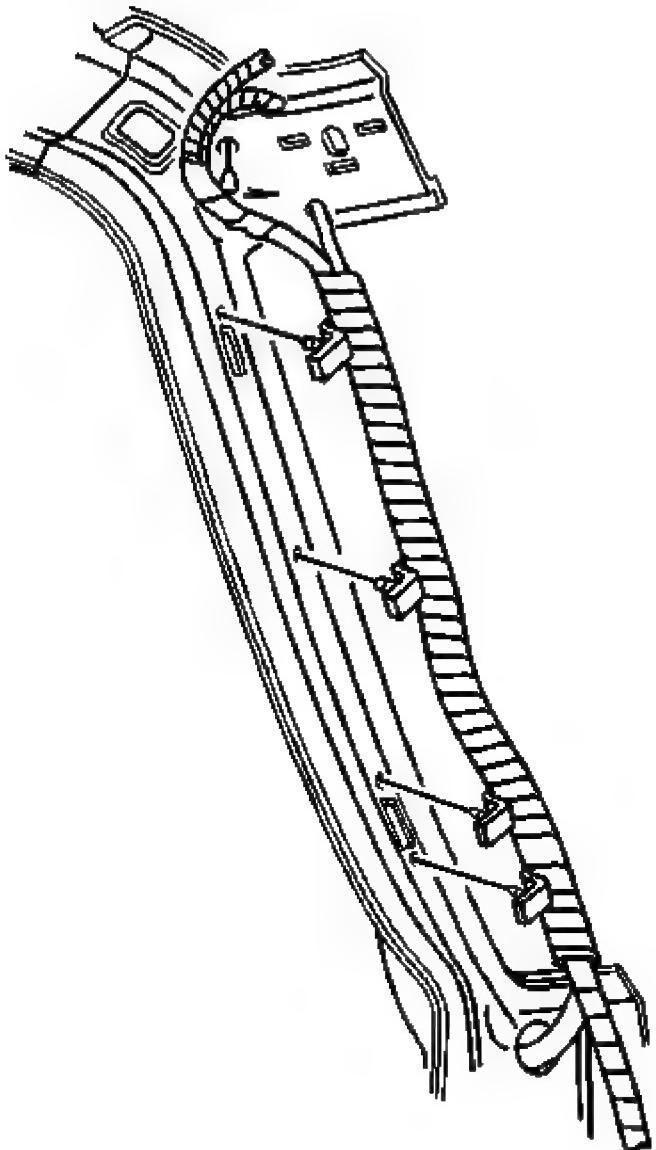
**Fig. 7: View Of Sunroof Drain Hose**

Courtesy of GENERAL MOTORS CORP.

2. Remove the sunroof drain hose from the spigot at the front corner of the sunroof.

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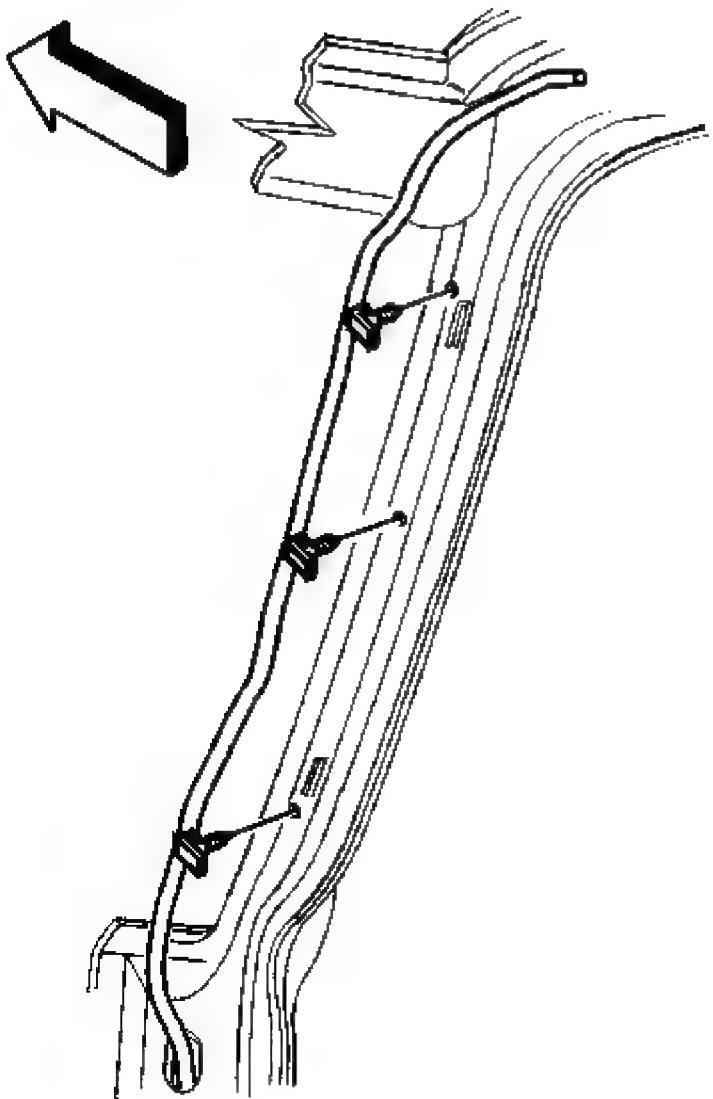
**Fig. 8: View Of Left Front Sunroof Drain Hose**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: The left front sunroof drain hose is a part of the dome lamp wiring harness.**

3. Unwrap the tape in order to remove the hose.

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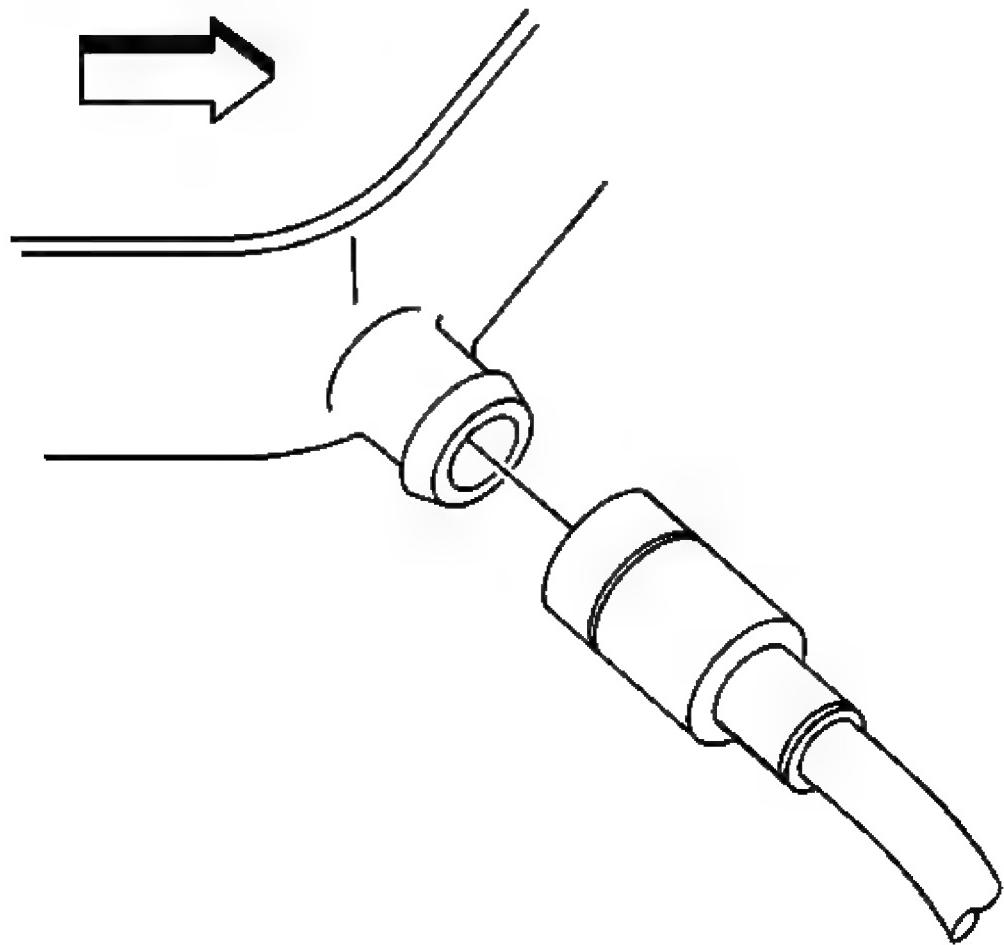
**Fig. 9: View Of Rosebud Clips**  
Courtesy of GENERAL MOTORS CORP.

4. Remove the rosebud clips from the front side door opening frame.
5. Remove the hose from the vehicle.

### Installation Procedure

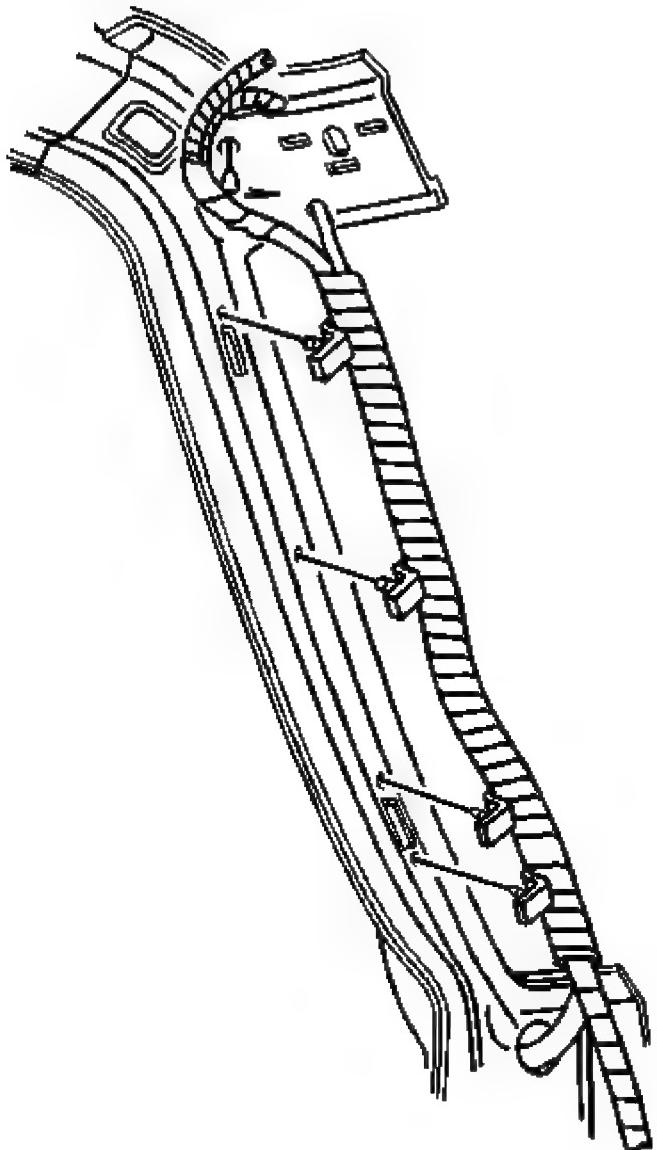
**2004 Chevrolet S10 Pickup**

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**Fig. 10: View Of Sunroof Drain Hose**  
**Courtesy of GENERAL MOTORS CORP.**

1. Install the sunroof drain hose to the spigot at the front corner of the sunroof.

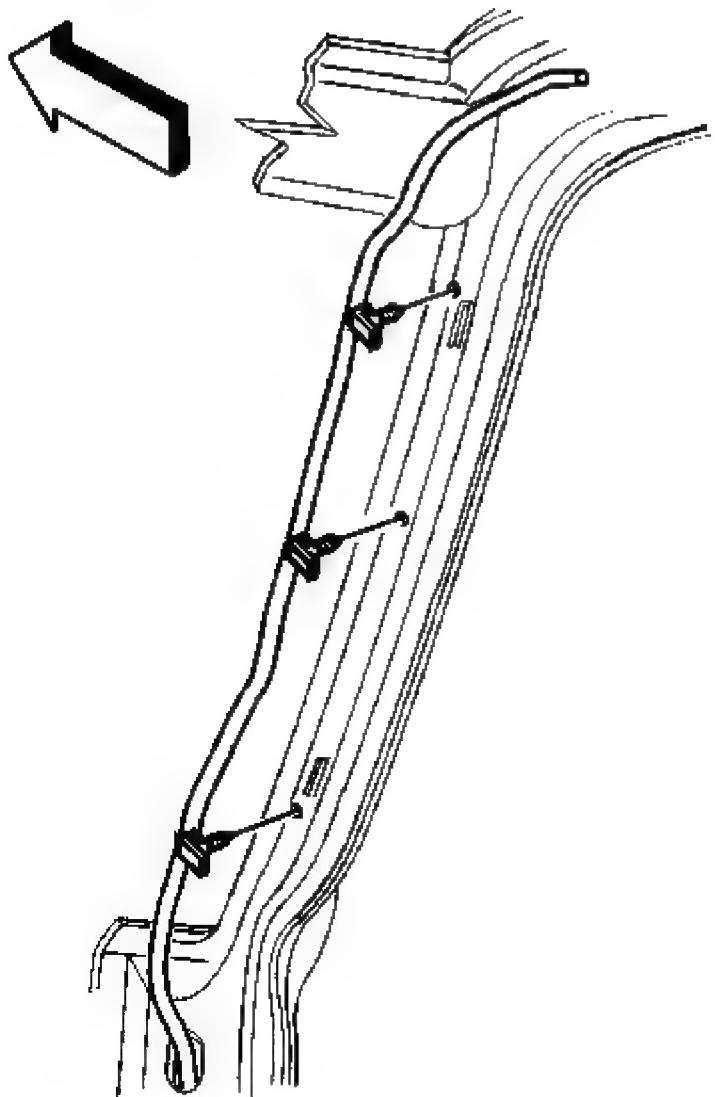


**Fig. 11: View Of Left Front Sunroof Drain Hose**  
Courtesy of GENERAL MOTORS CORP.

2. Wrap the left drain hose to the dome lamp wiring harness using electrical tape.
3. Install the 4 rosebud clips on the harness assembly into the left front side door opening frame.

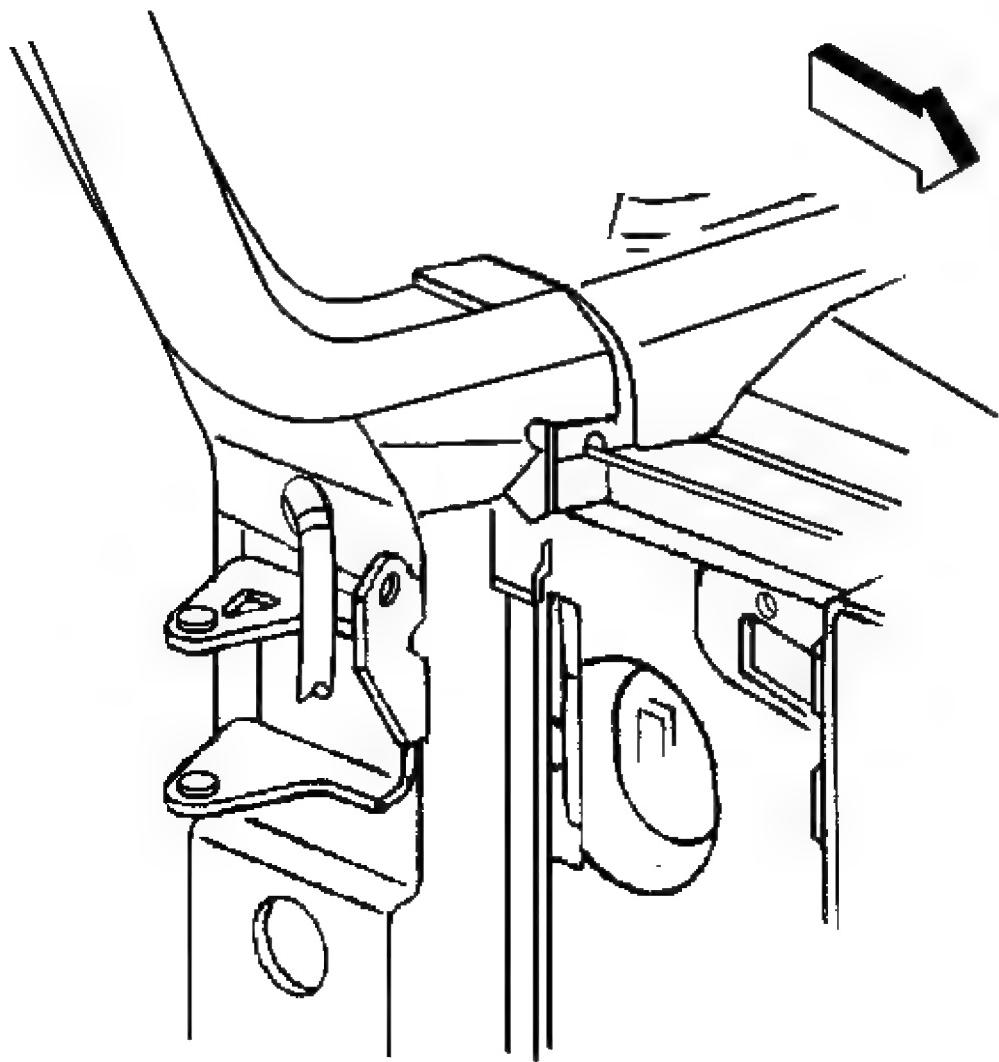
## 2004 Chevrolet S10 Pickup

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**Fig. 12: View Of Rosebud Clips**  
Courtesy of GENERAL MOTORS CORP.

4. Install the 3 rosebud clips on the right drain hose into the right front side door opening frame.



**Fig. 13: Inserting Hose Through Hole In Outer Sheet Metal**  
Courtesy of GENERAL MOTORS CORP.

5. Insert the hose through the hole in the outer sheet metal until the paint mark on the hose is visible. The hole is located above the front door top hinge.
6. Install the headliner. Refer to **Headliner Replacement (Pickup) Headliner Replacement (Utility)** in Interior Trim.

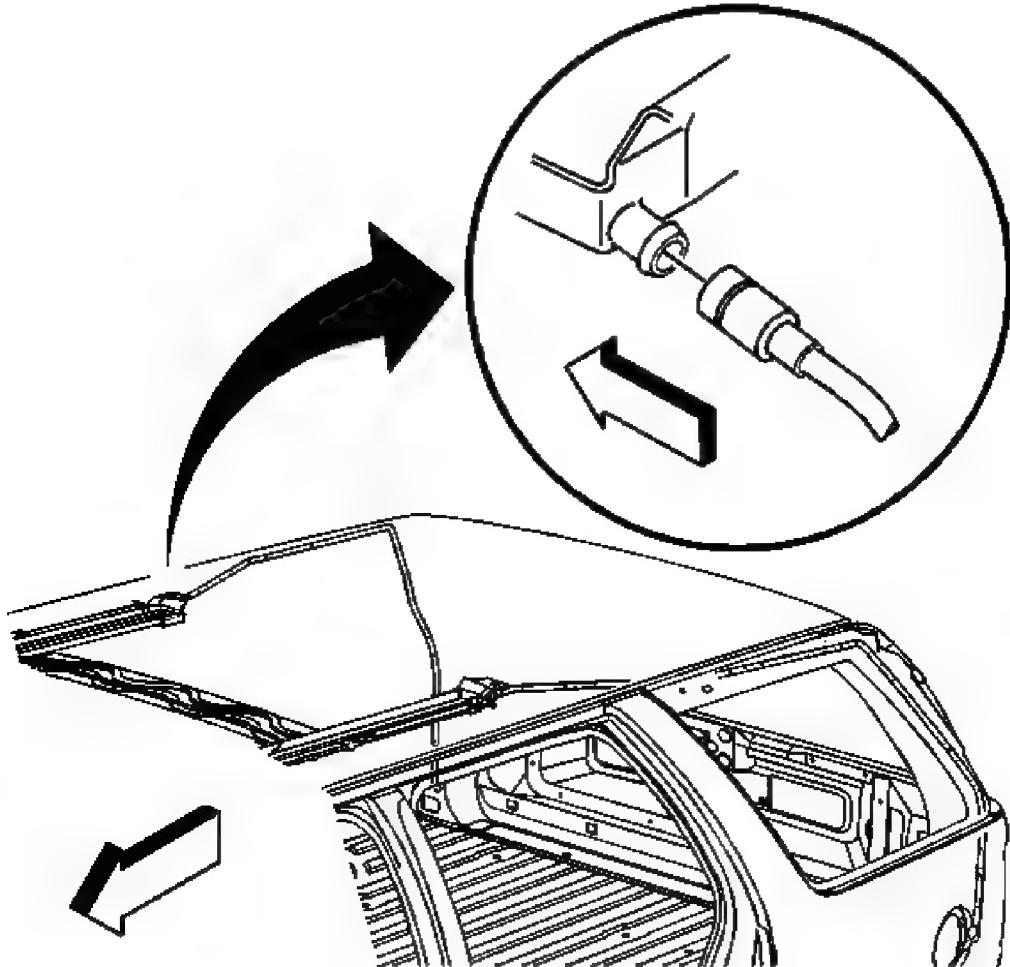
#### **SUNROOF DRAIN HOSE REPLACEMENT - REAR**

**Removal Procedure**

**2004 Chevrolet S10 Pickup**

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

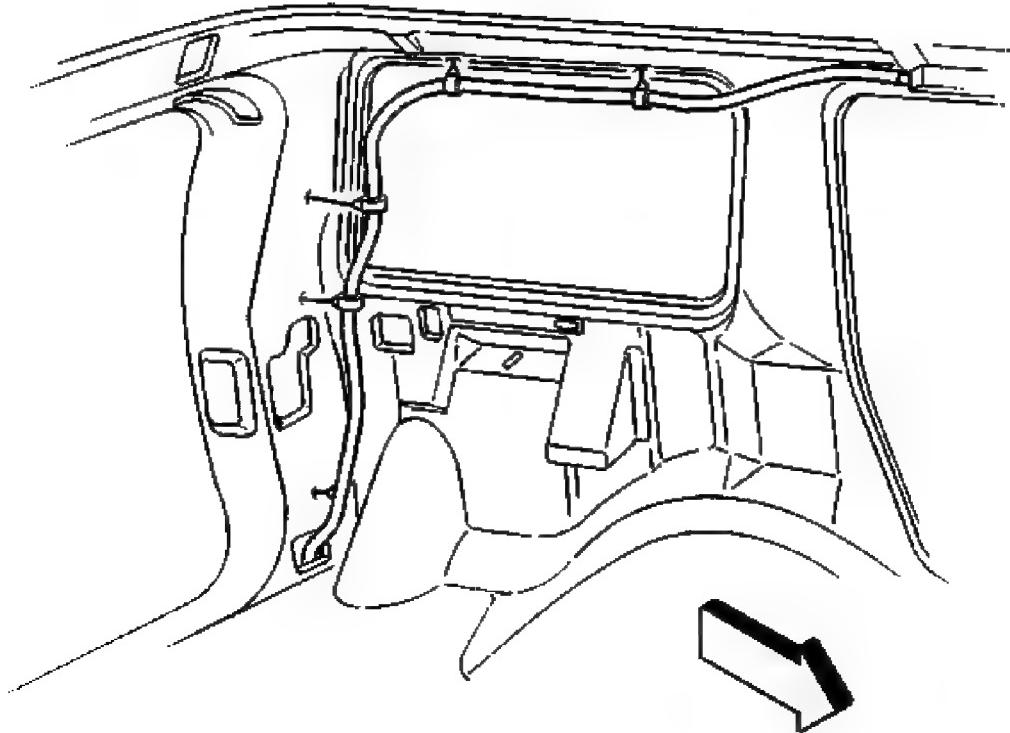
1. Remove the headliner. Refer to **Headliner Replacement (Pickup) Headliner Replacement (Utility)**.



**Fig. 14: View Of Rear Drain Hose**

Courtesy of GENERAL MOTORS CORP.

2. Disconnect the rear drain hose from the drain exit located at the rear of the sunroof on either side.



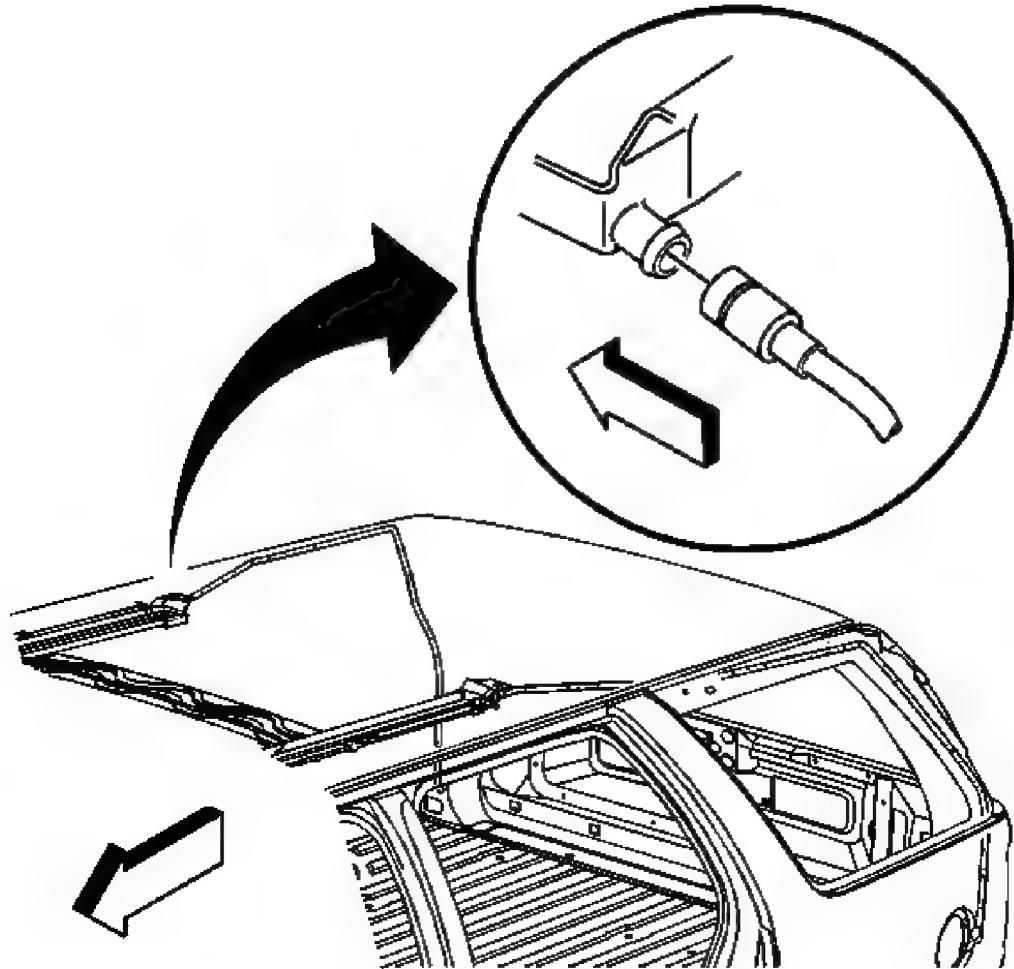
**Fig. 15: View Of Rosebud Clips**  
Courtesy of GENERAL MOTORS CORP.

3. Remove the rosebud clips securing the drain hose to the vehicle.
4. Remove the drain hose.

**Installation Procedure**

**2004 Chevrolet S10 Pickup**

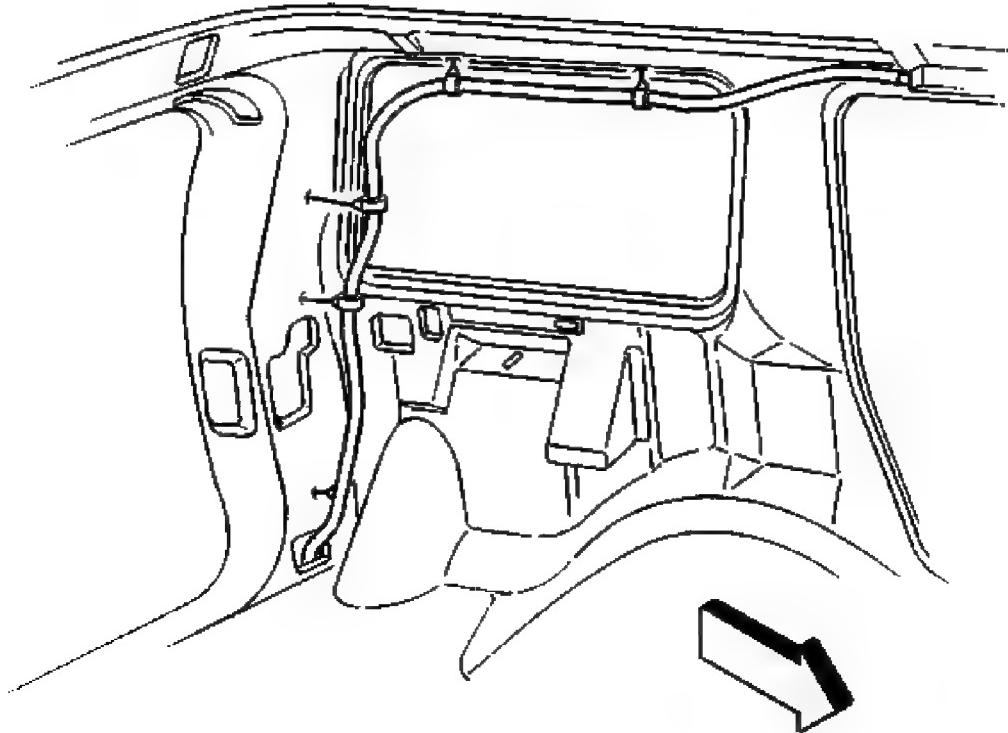
2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma



**Fig. 16: View Of Rear Drain Hose**

Courtesy of GENERAL MOTORS CORP.

1. Connect the rear drain hose from the drain exit located at the rear of the sunroof on either side.



**Fig. 17: View Of Rosebud Clips**

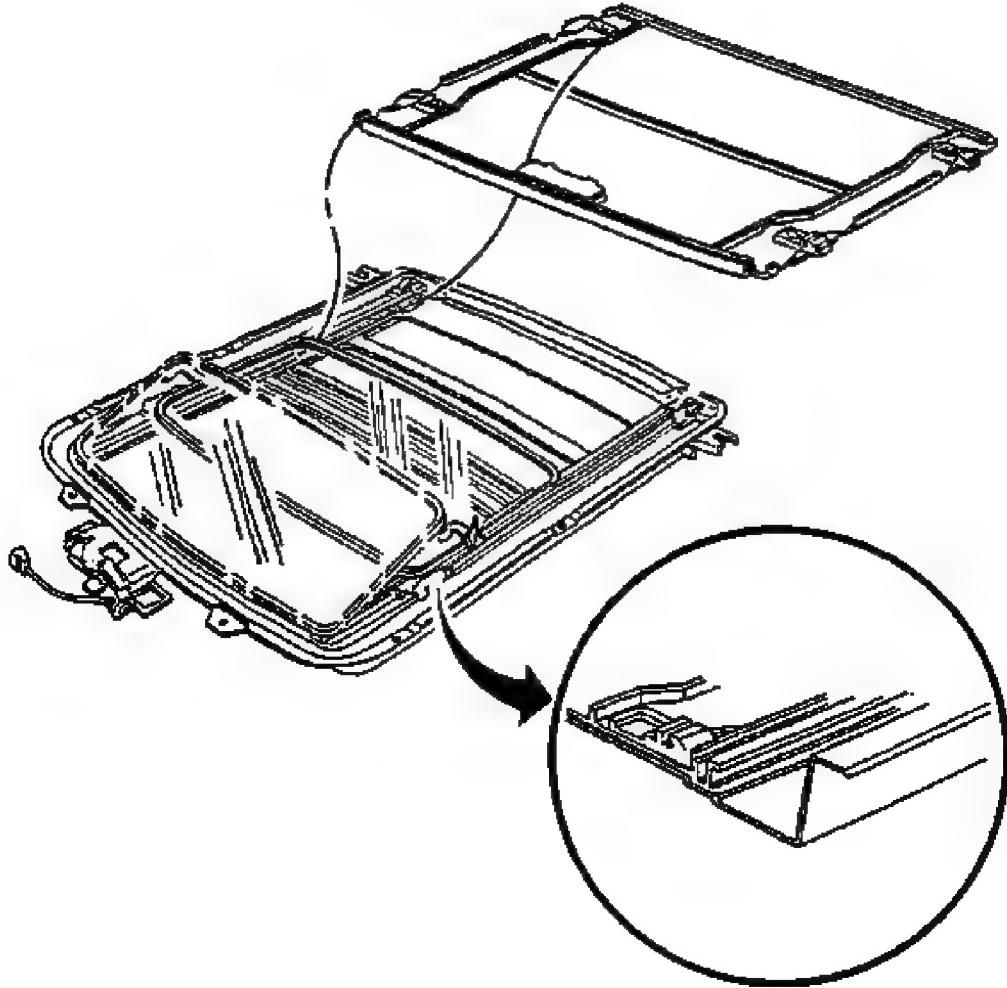
Courtesy of GENERAL MOTORS CORP.

2. Install the rosebud clips securing the drain hose to the vehicle.
3. Install the end of the drain hose into the sill opening.
4. Install the headliner. Refer to **Headliner Replacement (Pickup)** **Headliner Replacement (Utility)**.

## **SUNROOF SUNSHADE PANEL REPLACEMENT**

### **Removal Procedure**

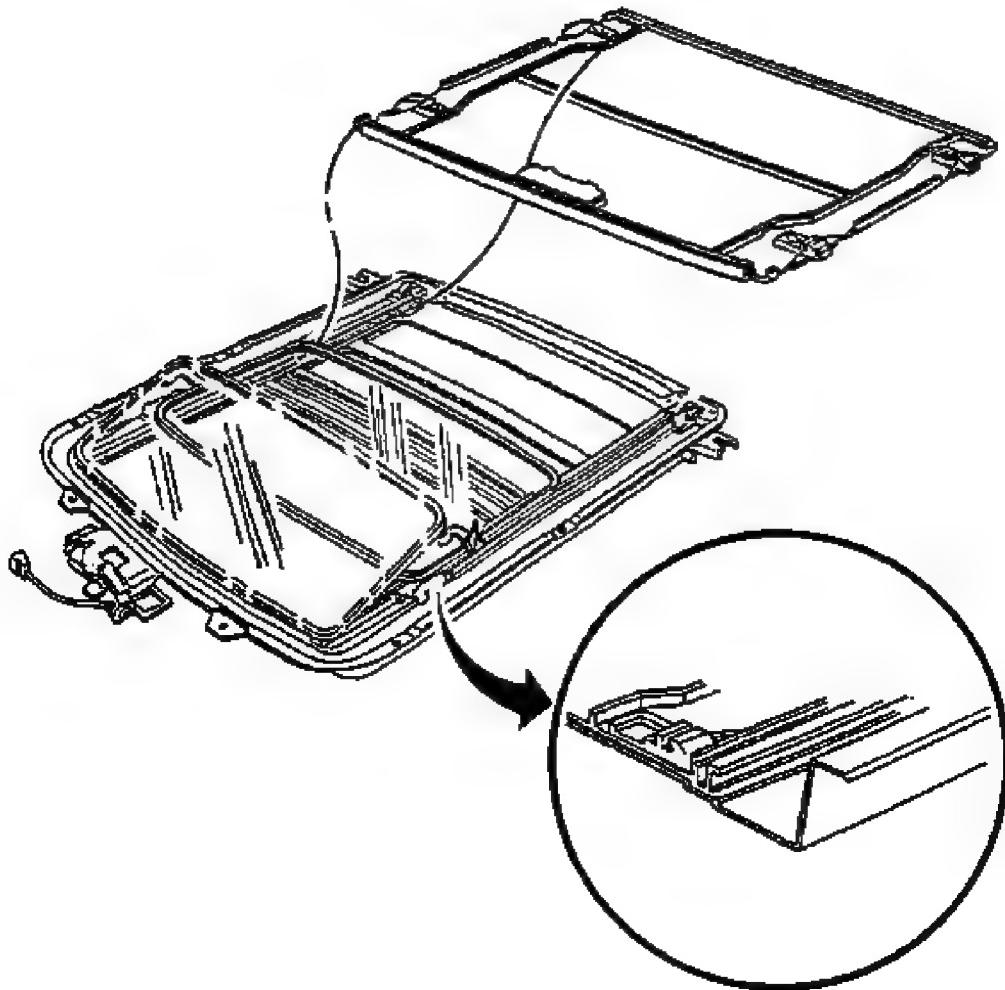
1. Remove the sunroof glass. Refer to **Sunroof Window Replacement (CF5)** or **Sunroof Window Replacement (ZRX/XTREME w/ CF5)**.
2. Slide the sunshade forward.



**Fig. 18: View Of Sunroof Sunshade Panel**  
**Courtesy of GENERAL MOTORS CORP.**

3. Flex the center of the sunshade downward while pulling up and forward on the front center of the sunshade.
4. Pull the sunshade forward until the front tabs release from the track slots.
5. Flex the center of the sunshade downward and release the rear tabs from the track slots.

**Installation Procedure**



**Fig. 19: View Of Sunroof Sunshade Panel**  
Courtesy of GENERAL MOTORS CORP.

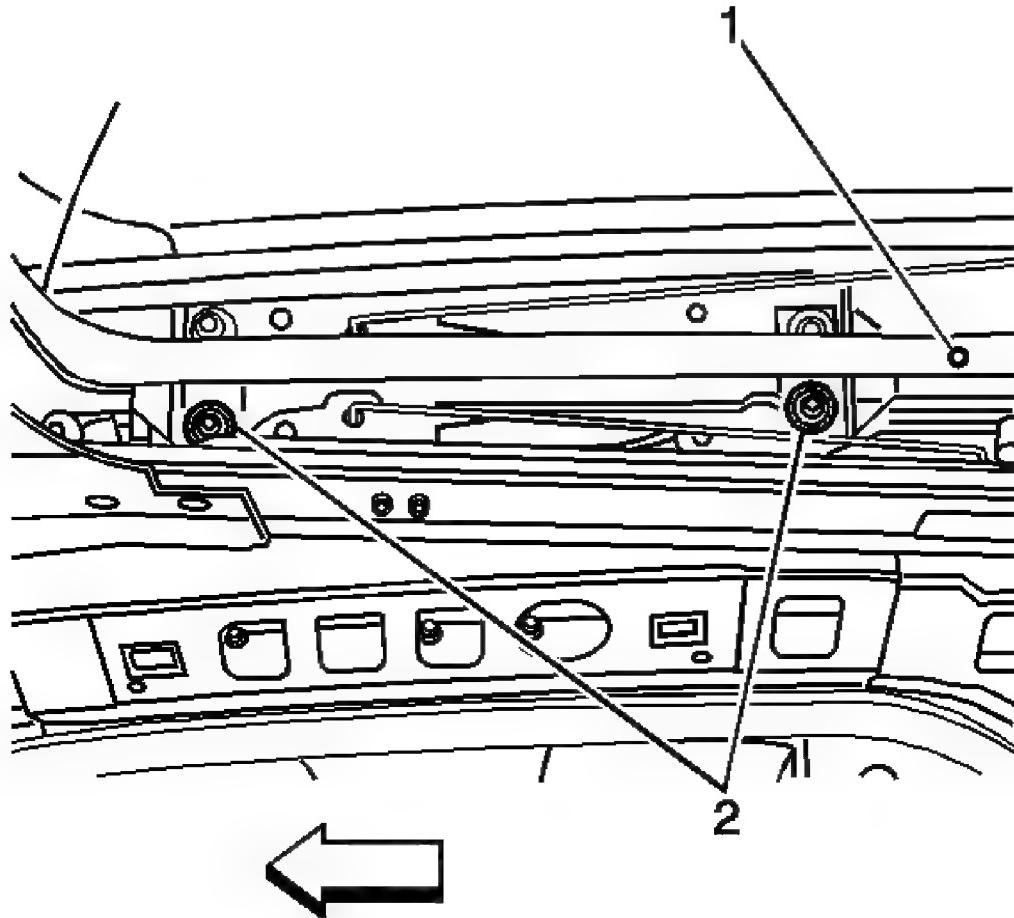
1. Insert the rear tabs of the sunshade into the track slots.
2. Carefully slide the sunshade rearward until the front tabs are aligned with the track slots.
3. Push the front tabs through the track slots.
4. Slide the sunshade rearward.
5. Install the sunroof glass. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).

#### **SUNROOF WINDOW REPLACEMENT (CF5)**

##### **Removal Procedure**

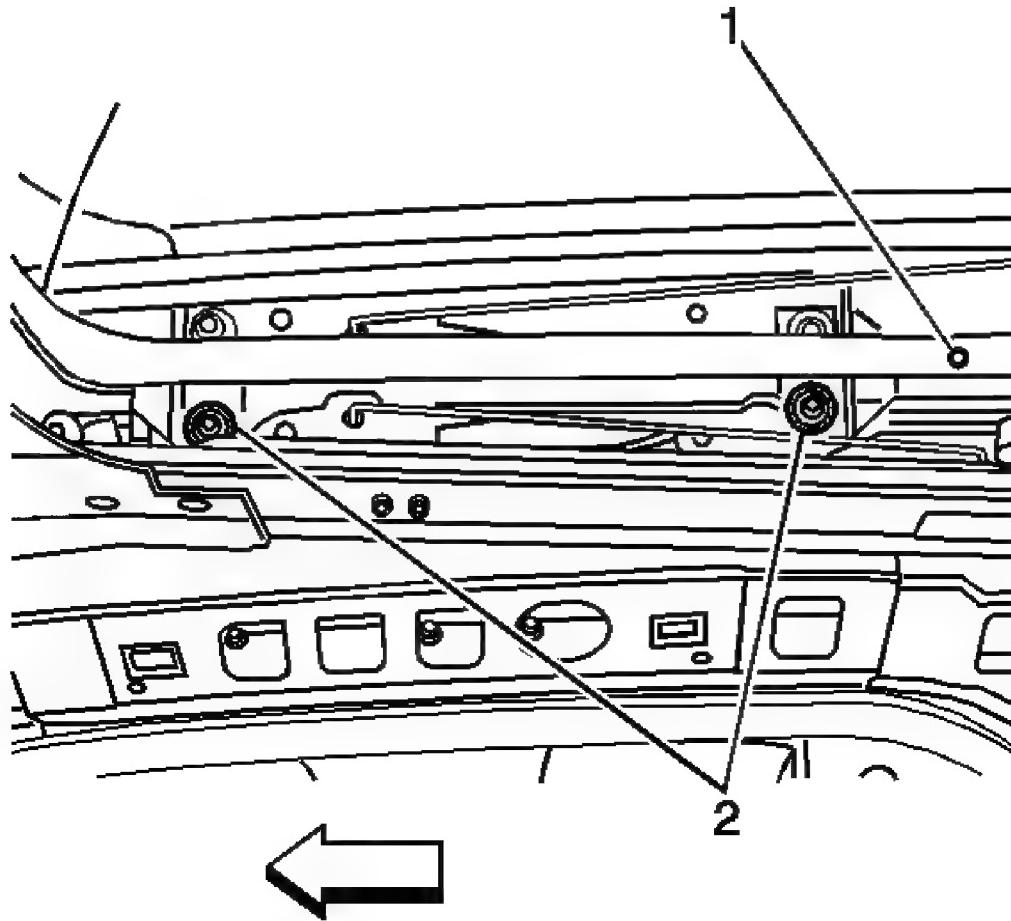
**IMPORTANT: The sunroof must be in the fully closed position prior to removing the glass panel.**

1. Open the sunshade panel.



**Fig. 20: Locating Sunroof Window Components**  
Courtesy of GENERAL MOTORS CORP.

2. Remove the 4 screws (2) that retain the sunroof window (1) to the sunroof module assembly.
3. Remove the sunroof window from the top of the vehicle.



**Fig. 21: Locating Sunroof Window Components**  
Courtesy of GENERAL MOTORS CORP.

1. Position the sunroof window (1) to the vehicle.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

2. Install the screws (2) that retain the sunroof window (1) to the sunroof module assembly.
3. Perform the following steps in order to adjust the sunroof window.
  - A. Adjust the fit between the sunroof window and the roof opening.

The fit should be equal on both sides.

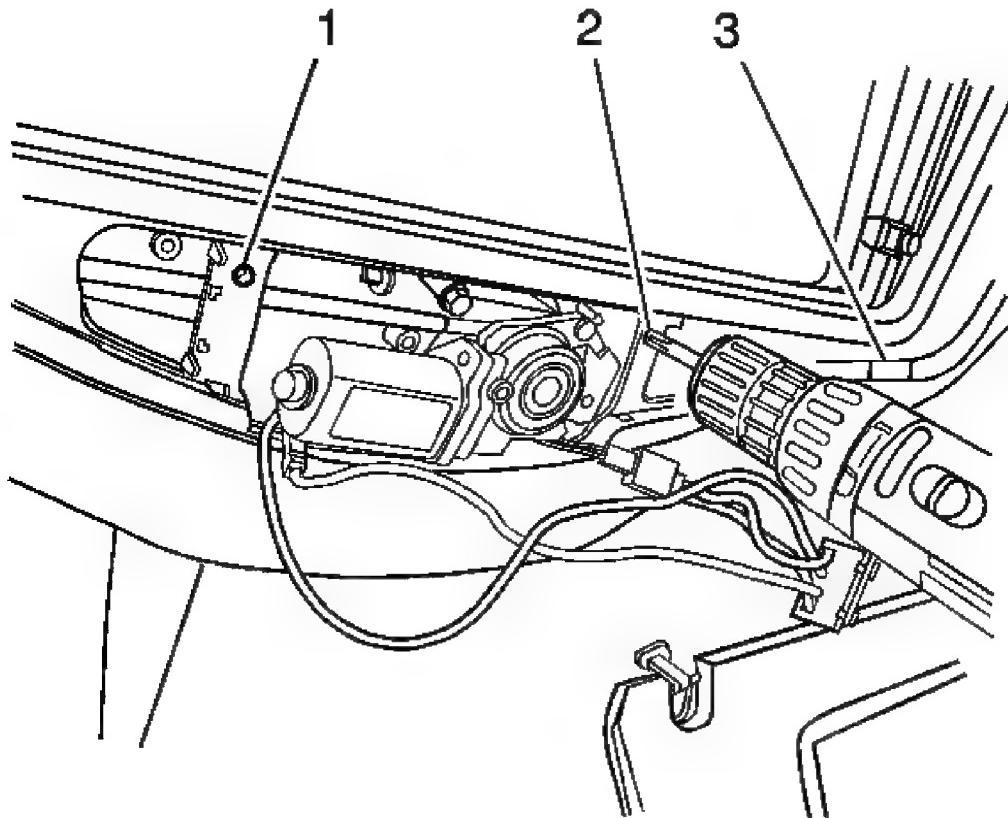
- B. Adjust the rear edge of the window slightly higher than the front edge in order to minimize wind noise.

**Tighten:** Tighten the sunroof window screws to 3 N.m (27 lb in).

4. Open and close the sunroof.
5. Inspect the fit of the sunroof window.

#### **SUNROOF WINDOW REPLACEMENT (ZRX/XTREME W/ CF5)**

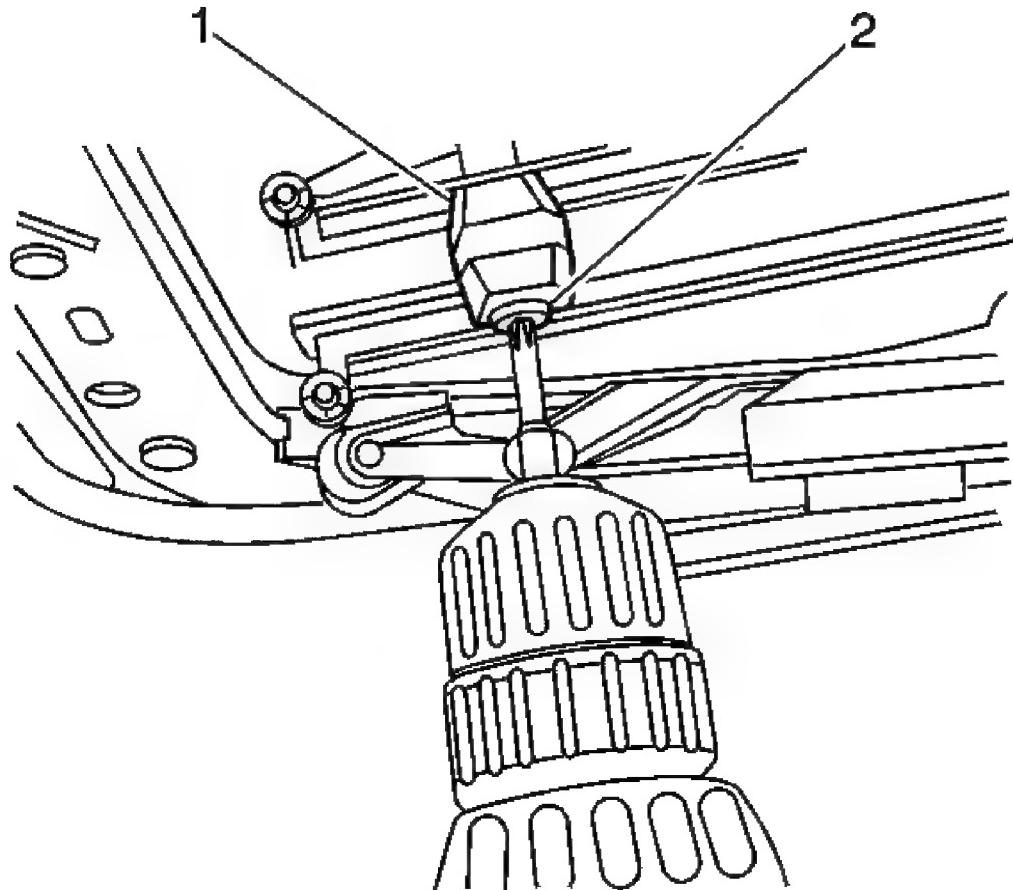
##### **Removal Procedure**



**Fig. 22: View Of Window Panel Garnish Molding**

Courtesy of GENERAL MOTORS CORP.

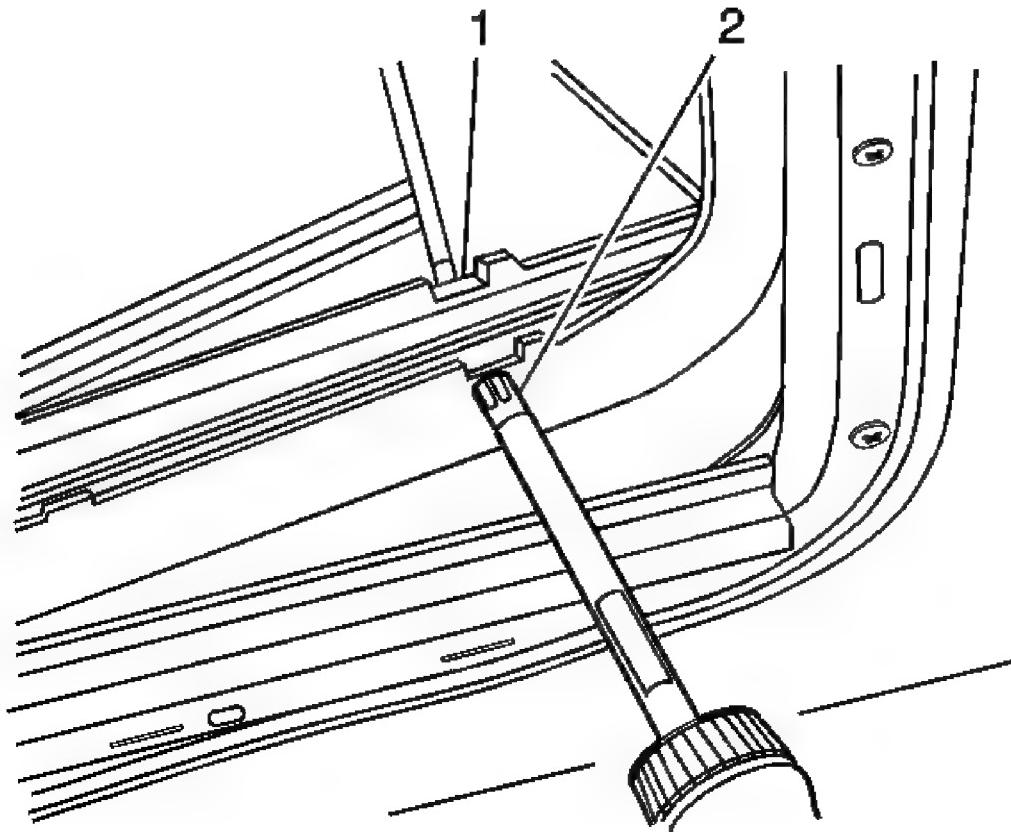
1. Remove the window panel garnish molding (1). Refer to Garnish Molding Replacement - Sunroof Panel Window (ZRX/Xtreme w/ CF5) in Interior Trim.



**Fig. 23: Locating Front Screws Retaining Sunroof Window To Sunroof Slider Arm**

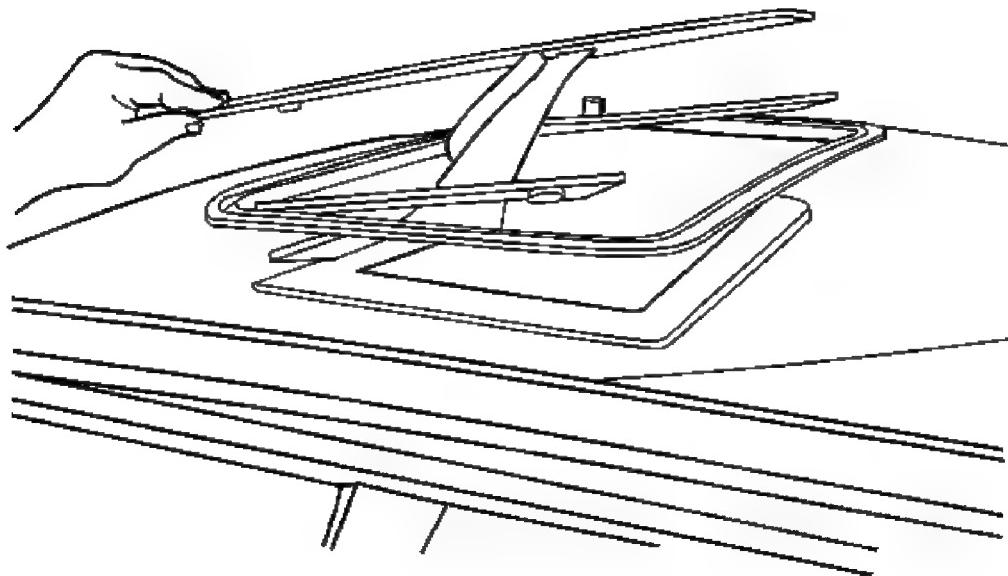
Courtesy of GENERAL MOTORS CORP.

2. Remove the 2 front screws (2) that retain the sunroof window to the sunroof slider arm.



**Fig. 24: Locating Rear Screws Retaining Sunroof Window To Sunroof Slider Arm**  
**Courtesy of GENERAL MOTORS CORP.**

3. Remove the 2 rear screws (2) that retain the sunroof window (1) to the sunroof slider arm.



**Fig. 25: View Of Sunroof Window**

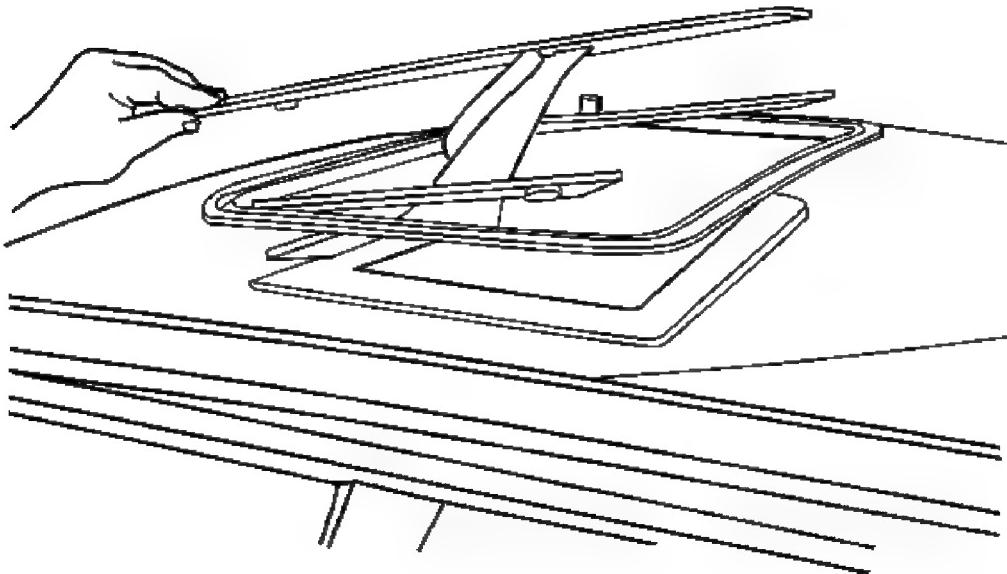
**Courtesy of GENERAL MOTORS CORP.**

4. With the palm of the hand, remove the sunroof window from the top of the slider arms.

**Installation Procedure**

## 2004 Chevrolet S10 Pickup

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

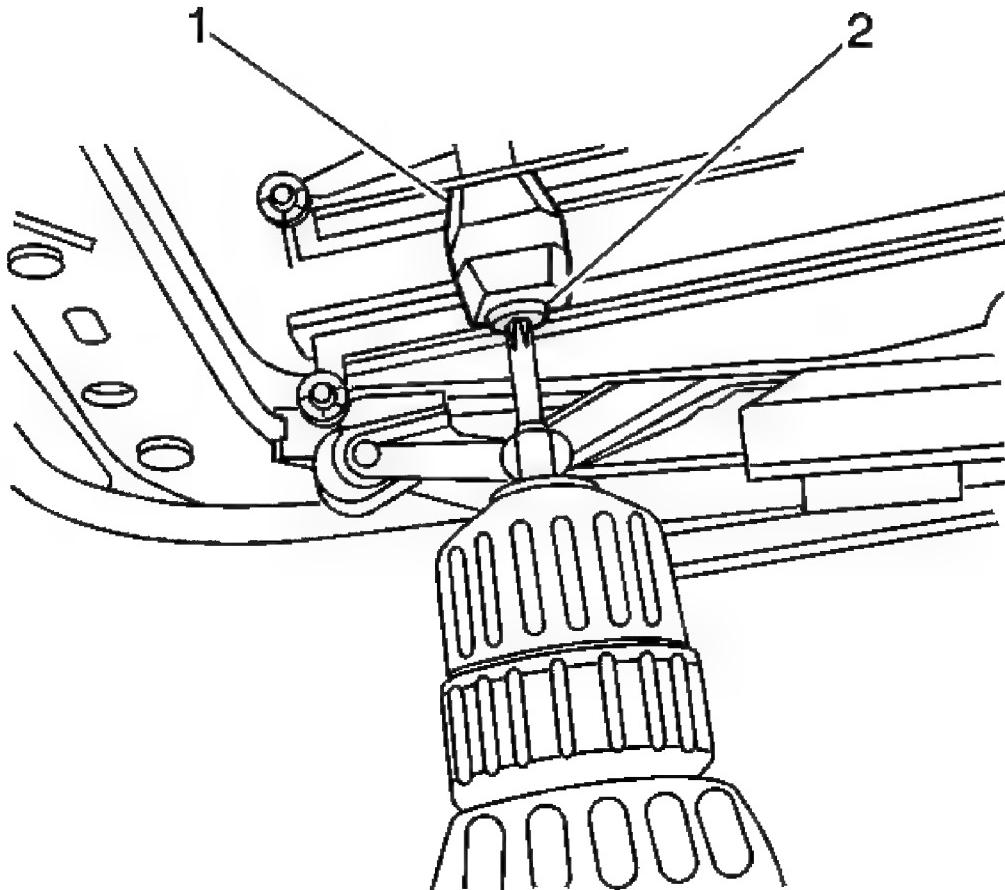


**Fig. 26: View Of Sunroof Window**

Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: The sunroof window is self locating to the slider arm.**

1. With the palm of the hand, position the sunroof window to the slider arm.



**Fig. 27: Locating Front Screws Retaining Sunroof Window To Sunroof Slider Arm**

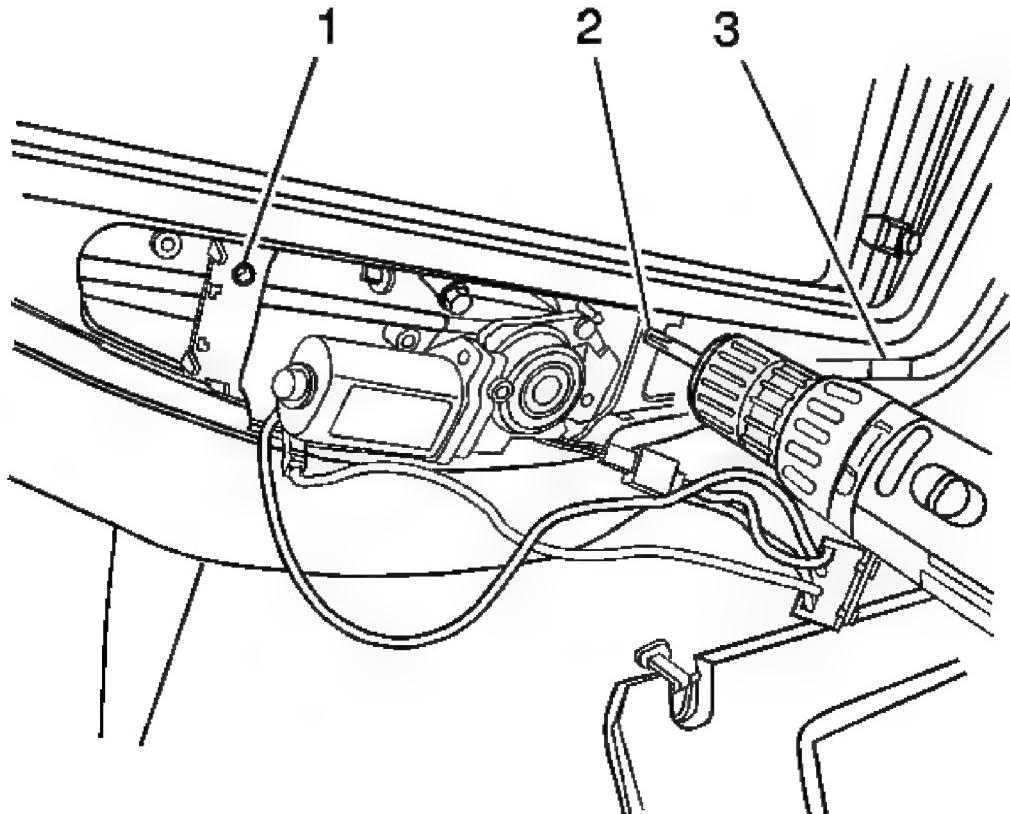
Courtesy of GENERAL MOTORS CORP.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

2. Install the 4 sunroof window screws (2).

**Tighten:** Tighten the sunroof window screws to 4 N.m (35 lb in).

3. Close the sunroof window.
4. Inspect the fit of the sunroof window to the outer periphery of the sunroof panel window seal.



**Fig. 28: View Of Window Panel Garnish Molding**

Courtesy of GENERAL MOTORS CORP.

5. Install the interior window panel garnish molding (1). Refer to [Garnish Molding Replacement - Sunroof Panel Window \(ZRX/Xtreme w/ CF5\)](#) in Interior Trim.
6. Clean the sunroof window.

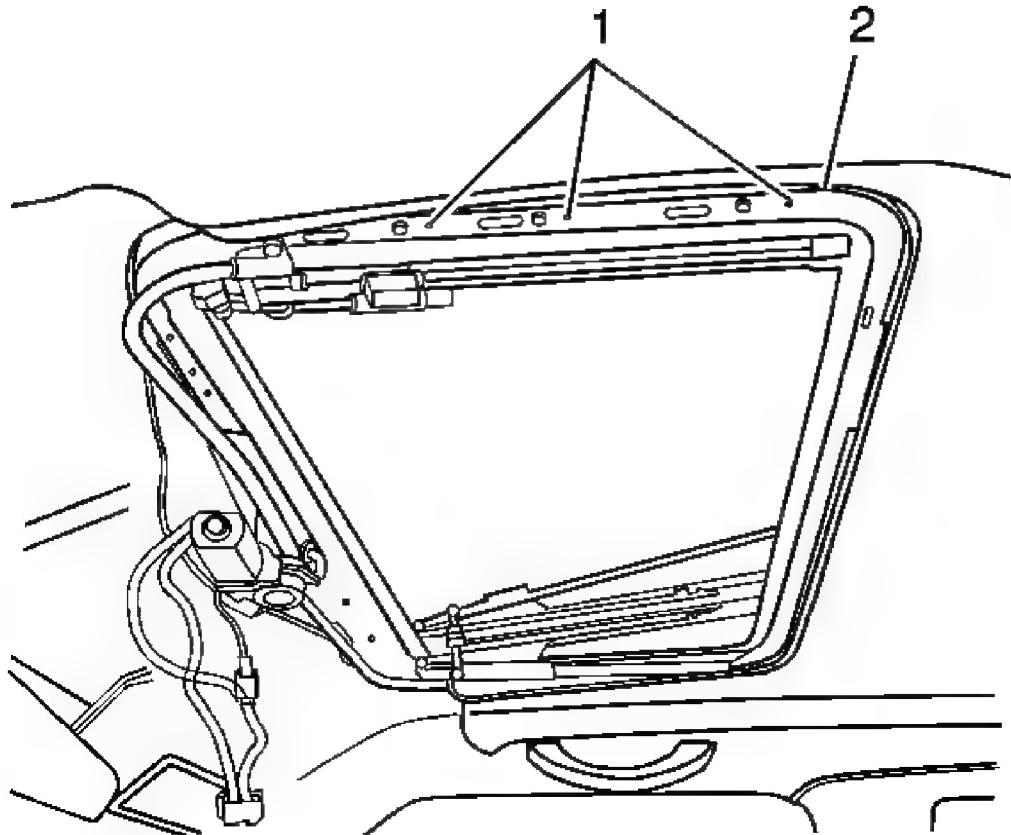
#### **SUNROOF WINDOW TRACK ASSEMBLY REPLACEMENT (ZRX/XTREME W/ CF5)**

##### **Removal Procedure**

1. Remove the sunroof motor/actuator. Refer to [Sunroof Motor/Actuator Replacement \(CF5\)](#) or [Sunroof Motor/Actuator Replacement \(ZRX/XTREME w/ CF5\)](#).
2. Remove the long gold assembly screw.
3. Remove the sunroof window. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).

## 2004 Chevrolet S10 Pickup

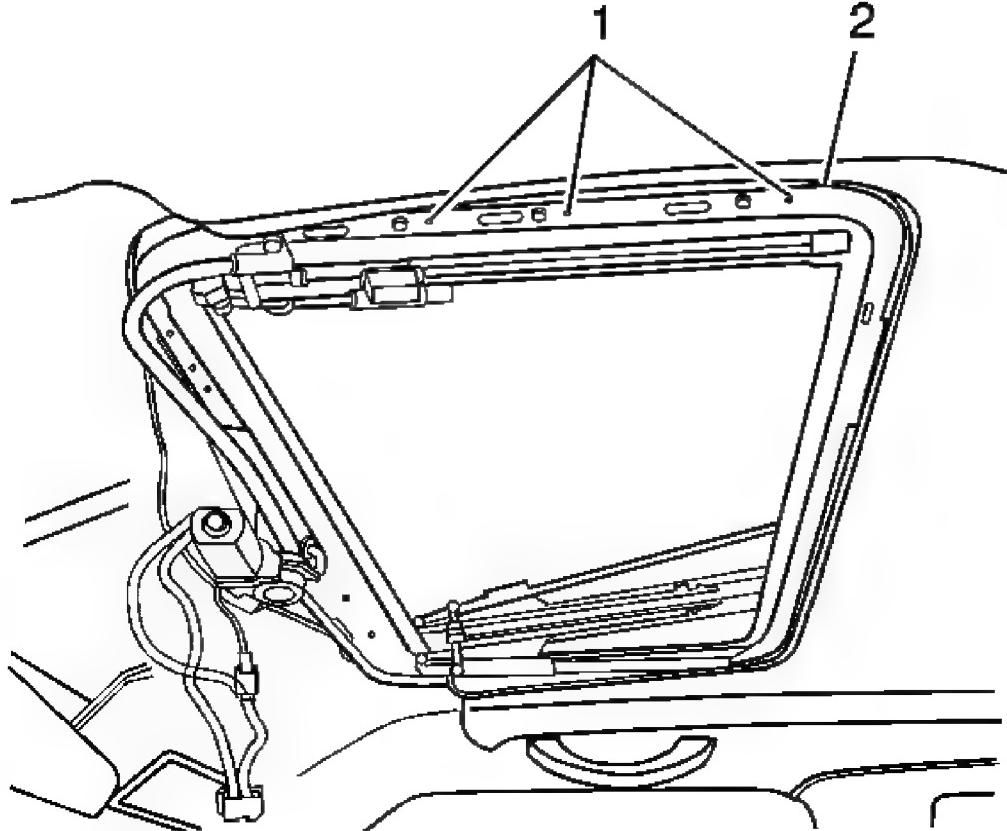
2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma



**Fig. 29: Locating Sunroof Window Track Assembly Components**  
Courtesy of GENERAL MOTORS CORP.

4. Remove the screws (1) from the window track.
5. Remove the window track assembly from the upper frame assembly.

### Installation Procedure



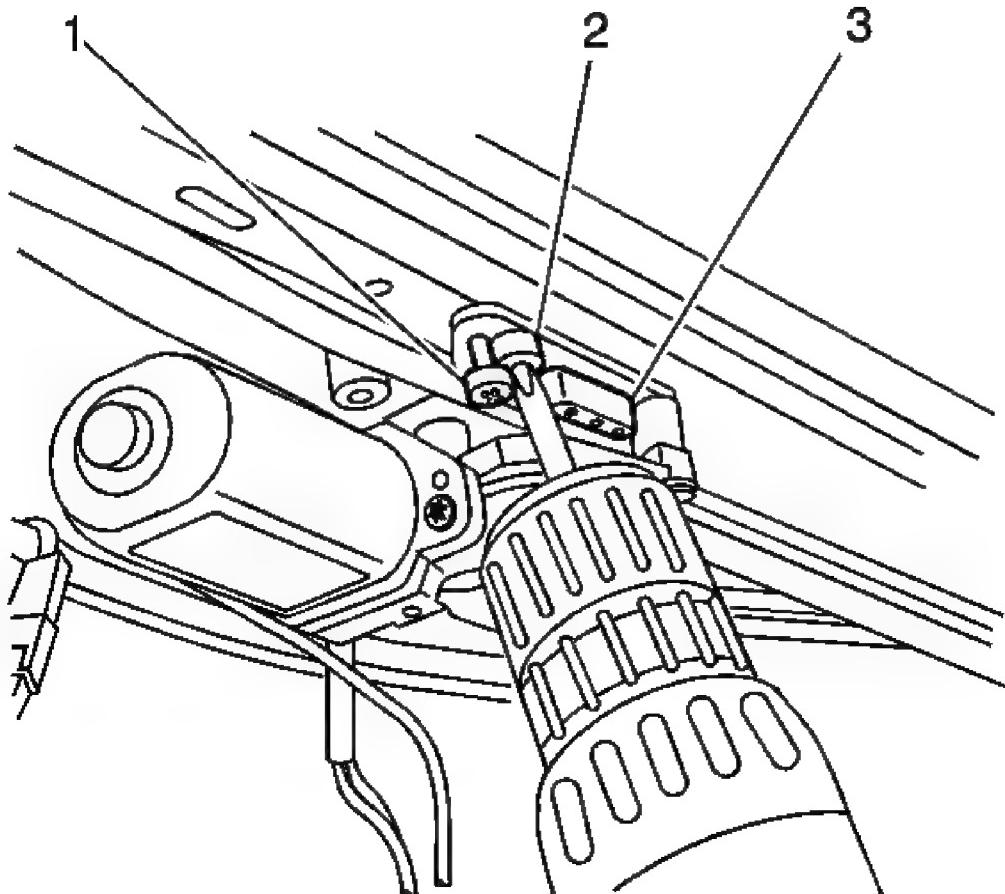
**Fig. 30: Locating Sunroof Window Track Assembly Components**  
Courtesy of GENERAL MOTORS CORP.

1. Install the window track assembly (left side) to the upper frame. Let the right side assembly hang.
2. Install the screws (1).
3. Lift the (right side) to the upper frame track.
4. Ensure the drive tubes are positioned into the front end of the window track.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

5. Install the screws.

**Tighten:** Tighten the screws to 4.0 N.m (35 lb in).



**Fig. 31: Locating Motor/Actuator Assembly Components**  
Courtesy of GENERAL MOTORS CORP.

6. Install the long gold assembly screw (1).
7. Install the sunroof window. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).
8. Install the motor/actuator. Refer to [Sunroof Motor/Actuator Replacement \(CF5\)](#) or [Sunroof Motor/Actuator Replacement \(ZRX/XTREME w/ CF5\)](#).

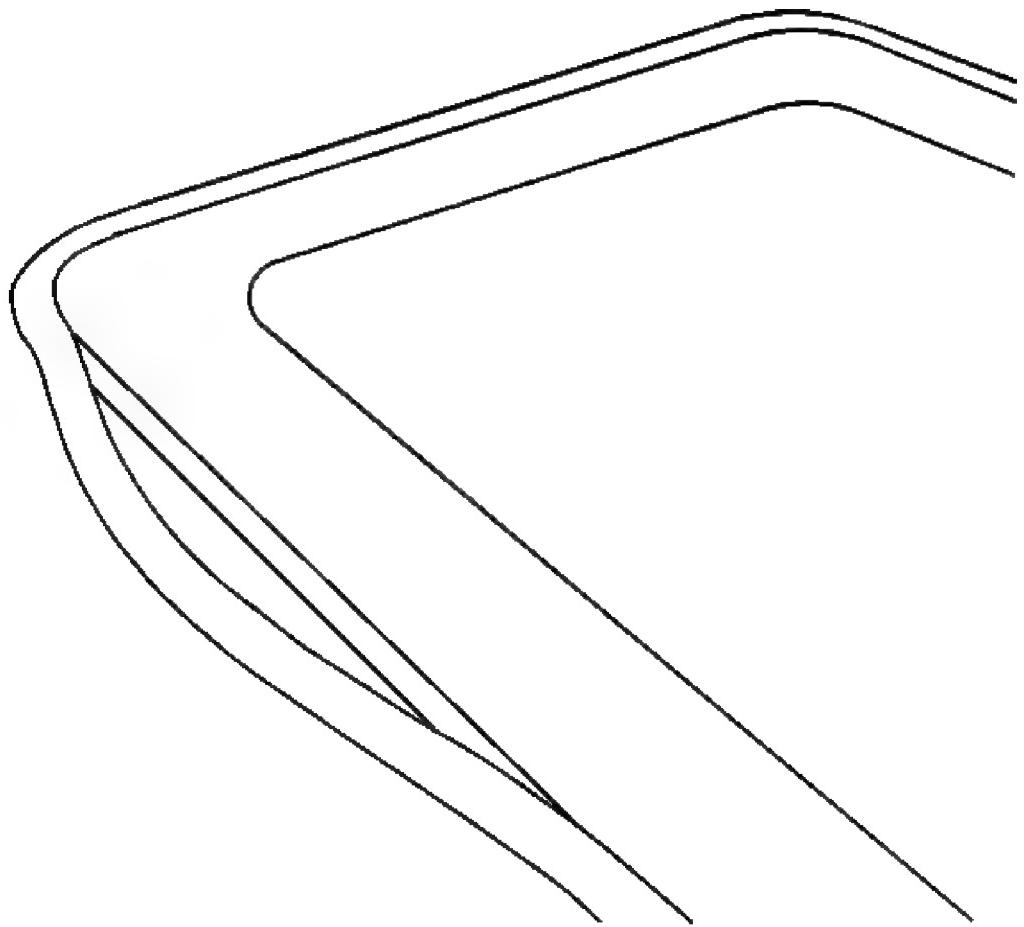
#### **SUNROOF WINDOW WEATHERSTRIP REPLACEMENT (CF5)**

##### **Removal Procedure**

1. Remove the sunroof window. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).

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**2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma**



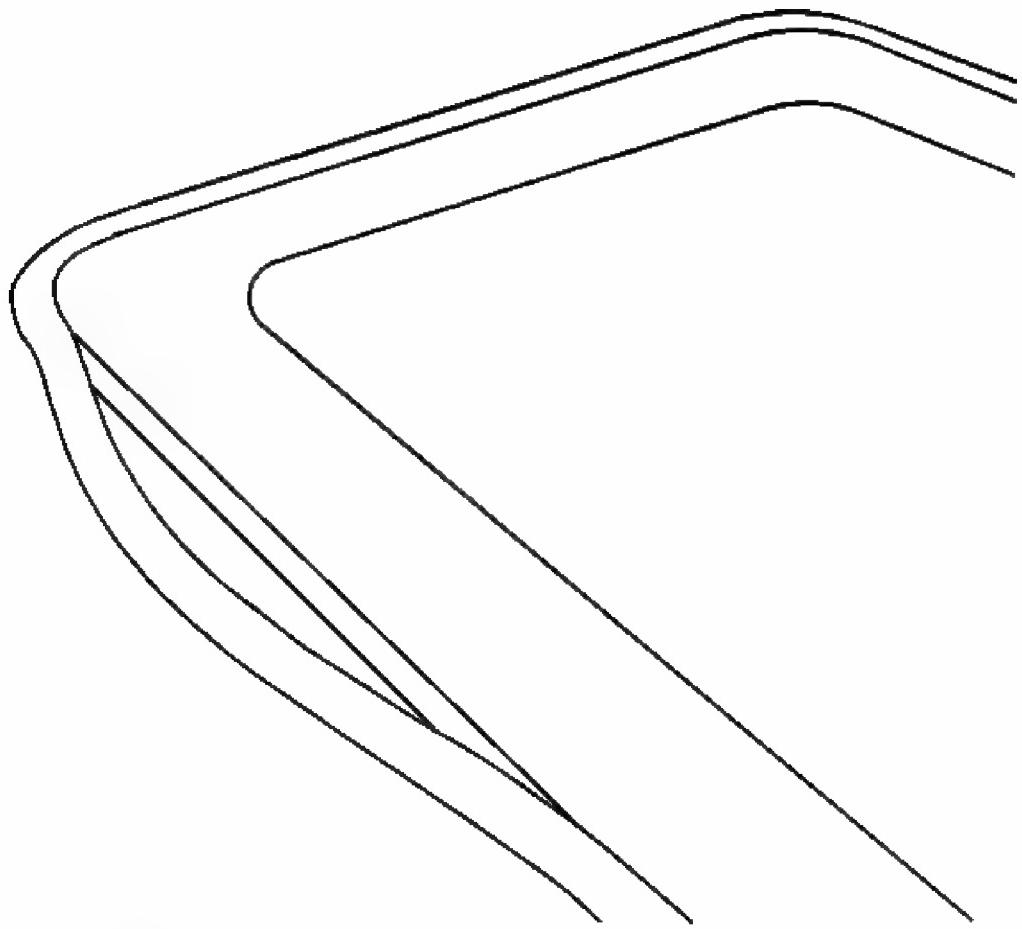
**Fig. 32: View Of Sunroof Window Weatherstrip**  
**Courtesy of GENERAL MOTORS CORP.**

2. Remove the sunroof window weatherstrip from the sunroof window by gently pulling the weatherstrip away at one point and continuing around the perimeter of the window.

### **Installation Procedure**

## 2004 Chevrolet S10 Pickup

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

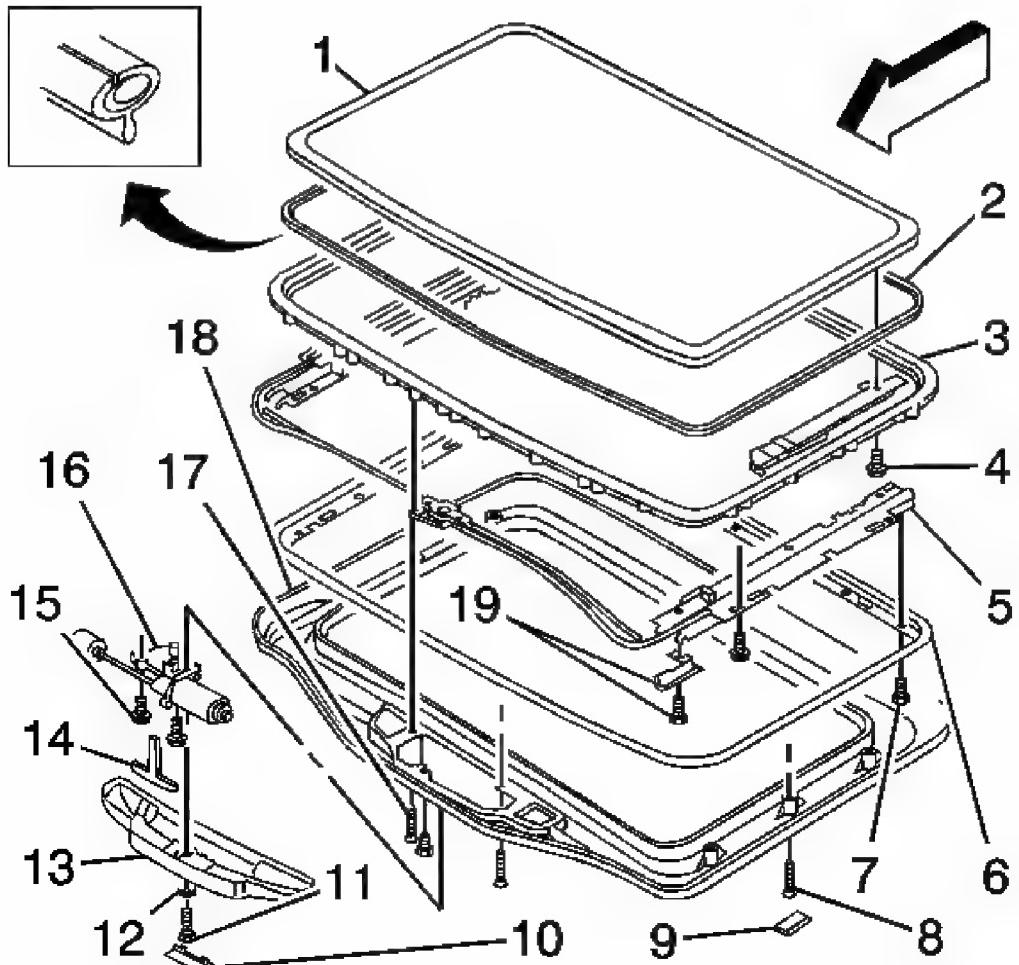


**Fig. 33: View Of Sunroof Window Weatherstrip**  
Courtesy of GENERAL MOTORS CORP.

1. Locate the seam on the weatherstrip.
2. Place the seam at the center of the rear edge of the sunroof window.
3. Firmly press the weatherstrip into place. Ensure that the weatherstrip is seated properly around the entire perimeter of the window.
4. Install the sunroof window. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).

### SUNROOF WINDOW WEATHERSTRIP REPLACEMENT (ZRX/XTREME)

#### Removal Procedure



**Fig. 34: Sunroof Disassembled View**  
Courtesy of GENERAL MOTORS CORP.

1. Open the sunroof window fully.
2. Remove the seal (2) from the front of the upper frame by pulling upward on the seal.
3. Position the sunroof in vent.
4. Finish removing the seal from the rear of the mainframe.

**IMPORTANT: The sunroof window will have to be removed in order to clean the entire frame track of silicone adhesive.**

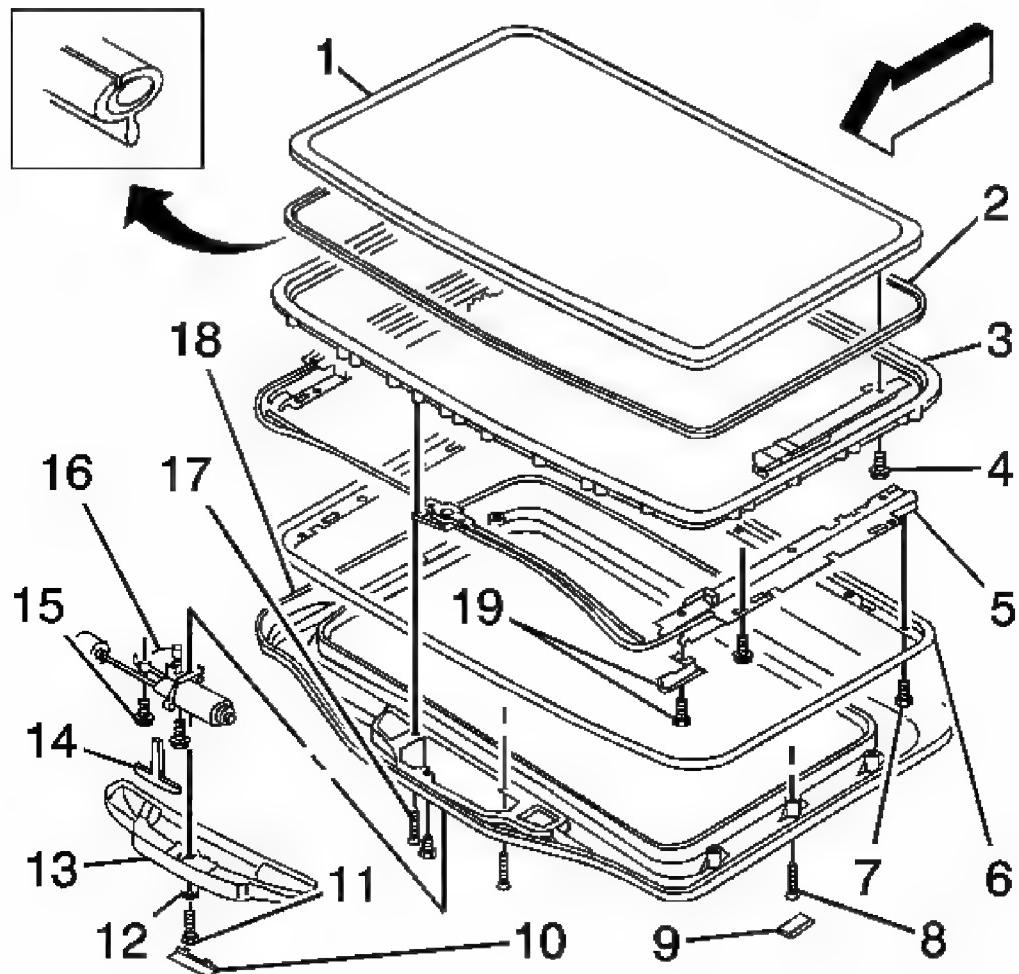
5. Completely clean the channel in the mainframe of silicone adhesive and any other debris. A nylon glazing stick or a soft wire brush would be helpful in removing the

## 2004 Chevrolet S10 Pickup

### 2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

silicone.

#### Installation Procedure



**Fig. 35: Sunroof Disassembled View**

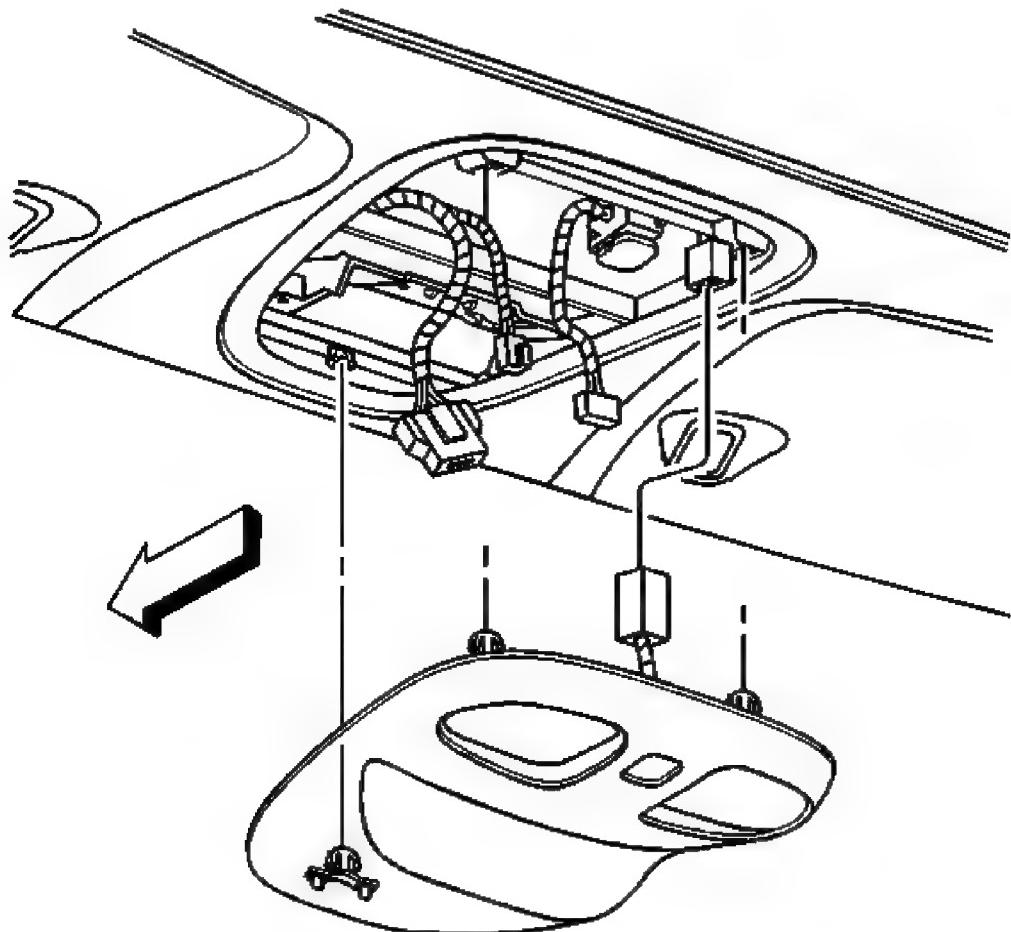
Courtesy of GENERAL MOTORS CORP.

1. Apply black, non-corrosive silicone adhesive under the entire outside edge of the seal.
2. Insert the new window seal by pressing the seal into the mainframe channel (3).
3. Install the sunroof window. Refer to [Sunroof Window Replacement \(CF5\)](#) or [Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)](#).
4. Fully close the sunroof and wait 4-6 hours at room temperature for the silicone adhesive to dry.
5. Visually check the window and seal in the full open and closed positions.

6. Open the sunroof.
7. Inspect the seal for high spots, correct if needed.

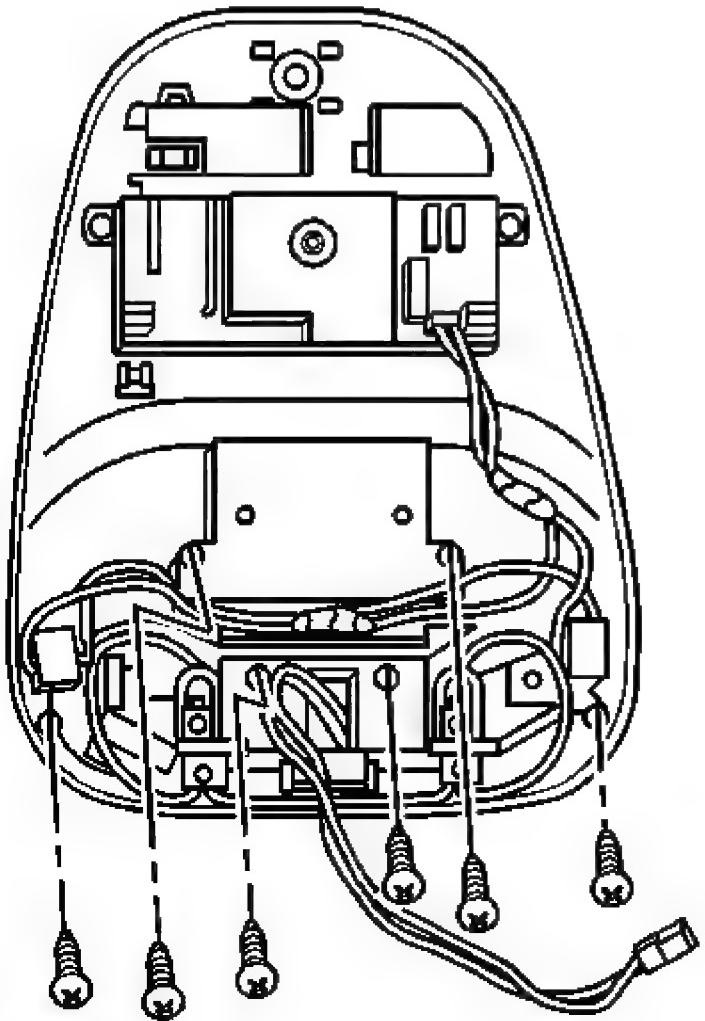
### **SUNROOF SWITCH REPLACEMENT (CF5)**

#### **Removal Procedure**



**Fig. 36: View Of Driver Information Console**  
Courtesy of GENERAL MOTORS CORP.

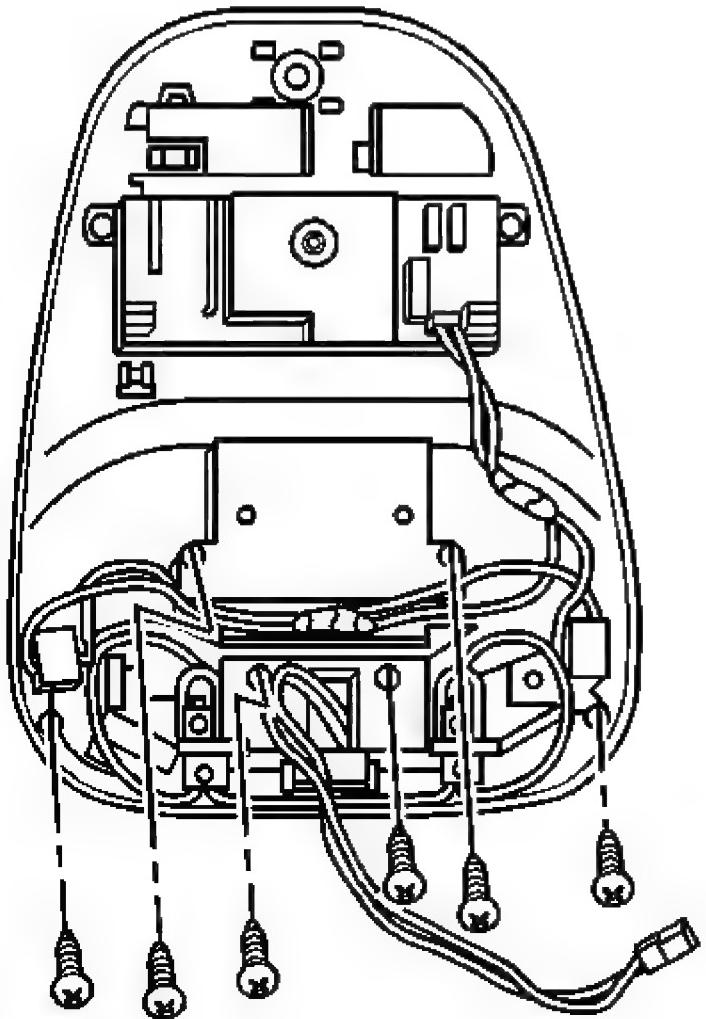
1. Remove the driver information console (DIC). Refer to [Driver Information Center Replacement \(Without Sunroof\)](#) or [Driver Information Center Replacement \(With Sunroof\)](#) in Instrument Panel, Gages and Console.
2. Disconnect the electrical connector from the driver information display module.



**Fig. 37: View Of Sunroof Switch Assembly**  
**Courtesy of GENERAL MOTORS CORP.**

3. Remove 6 screws securing the sunroof switch assembly to the DIC.
4. Remove the sunroof switch assembly from the DIC.

**Installation Procedure**



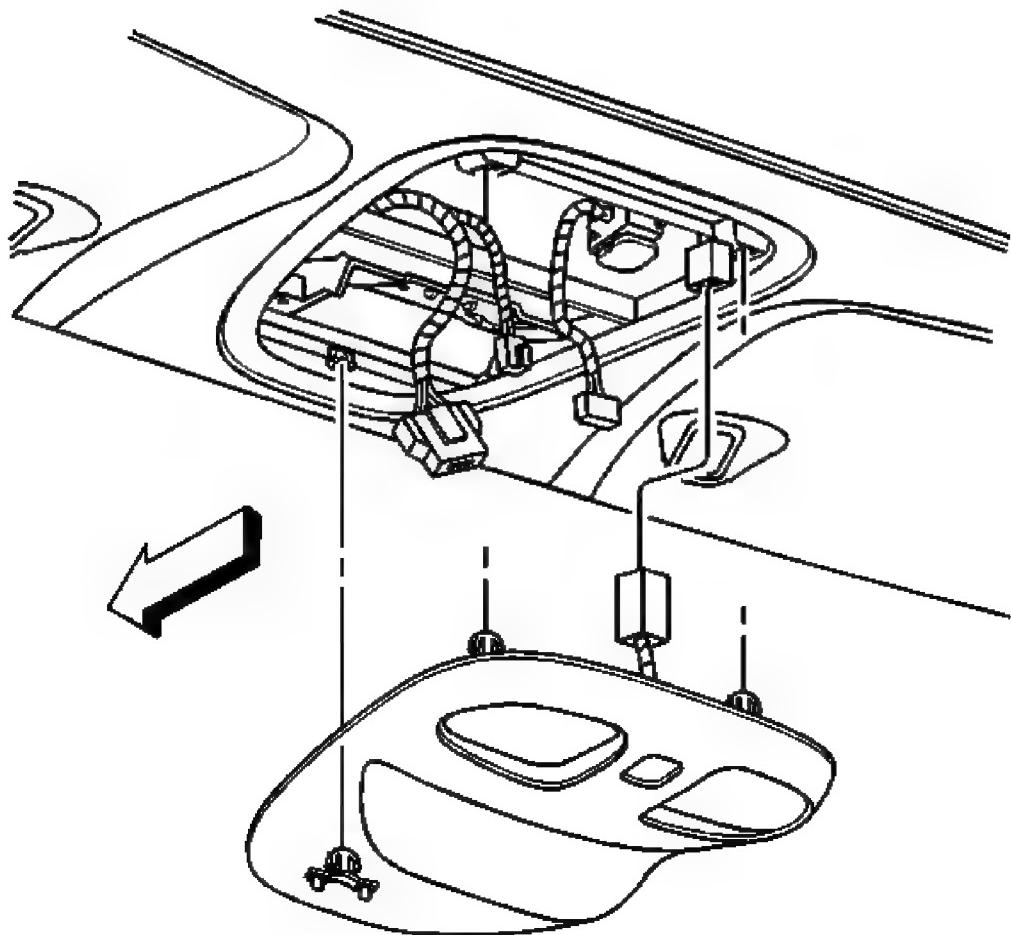
**Fig. 38: View Of Sunroof Switch Assembly**

Courtesy of GENERAL MOTORS CORP.

1. Install the sunroof switch to the sunroof console with 6 screws.
2. Connect the electrical connector to the driver information display module.

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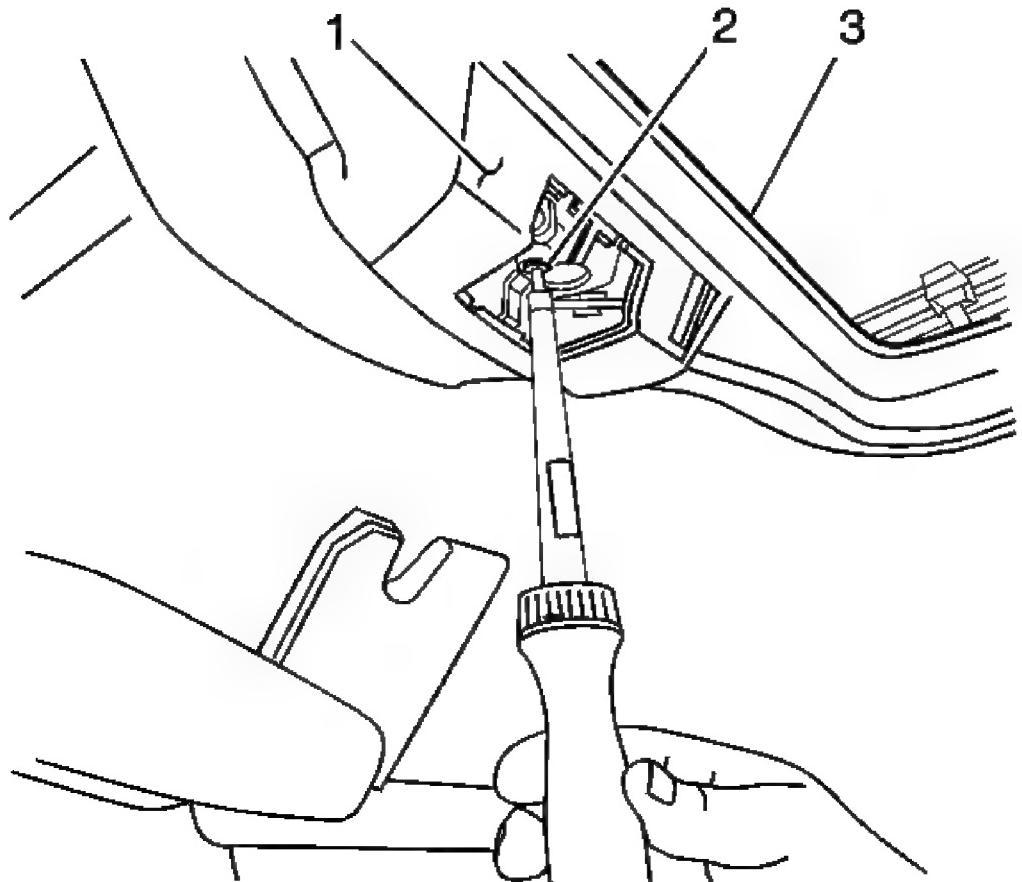


**Fig. 39: View Of Driver Information Console**  
Courtesy of GENERAL MOTORS CORP.

3. Install the DIC. Refer to **Driver Information Center Replacement (Without Sunroof)** **Driver Information Center Replacement (With Sunroof)** in Instrument Panel, Gages and Console.

### SUNROOF SWITCH REPLACEMENT (ZRX/XTREME W/CF5)

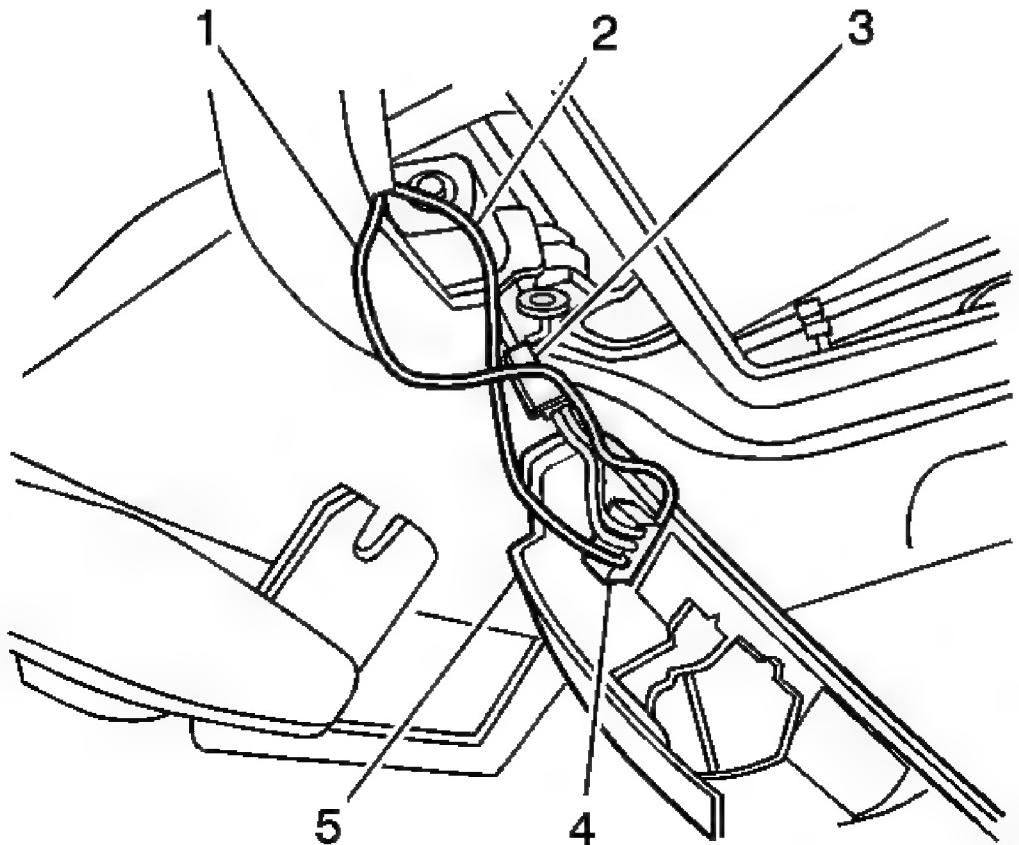
#### Removal Procedure



**Fig. 40: View Of Motor/Actuator Trim Cover**

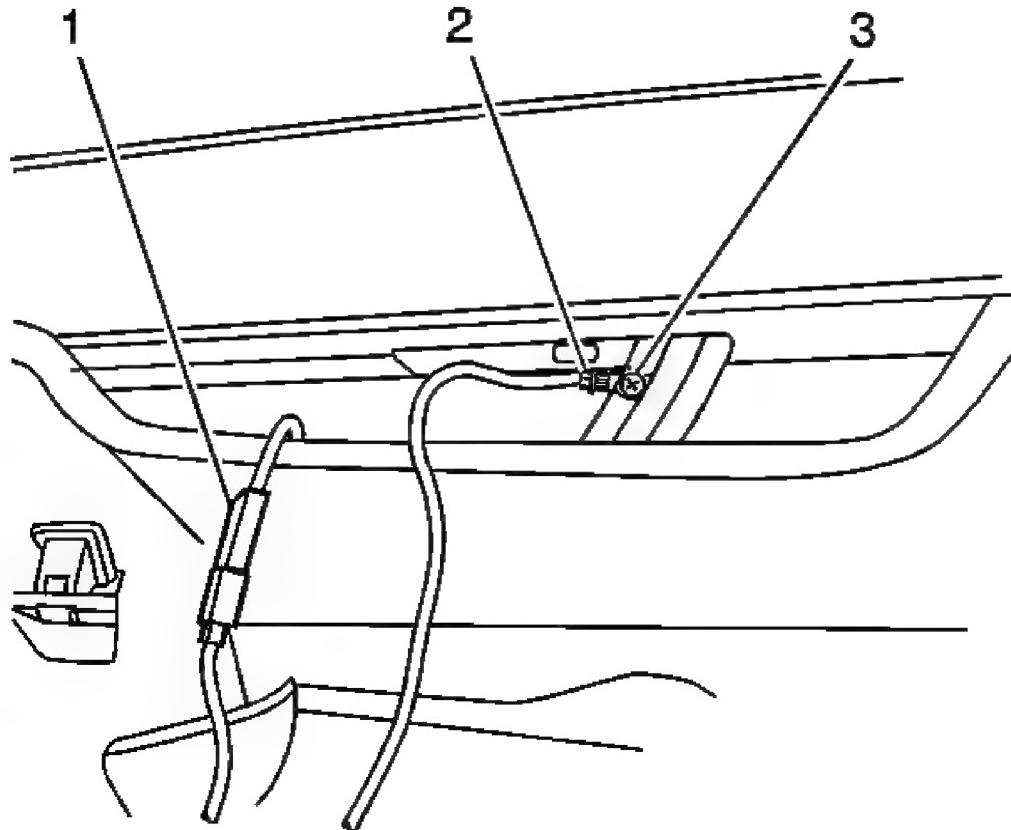
Courtesy of GENERAL MOTORS CORP.

1. With a medium flat-bladed tool, remove the motor/actuator service cover.
2. Remove the motor/actuator trim cover screw (2).



**Fig. 41: Locating Trim Cover Components**  
Courtesy of GENERAL MOTORS CORP.

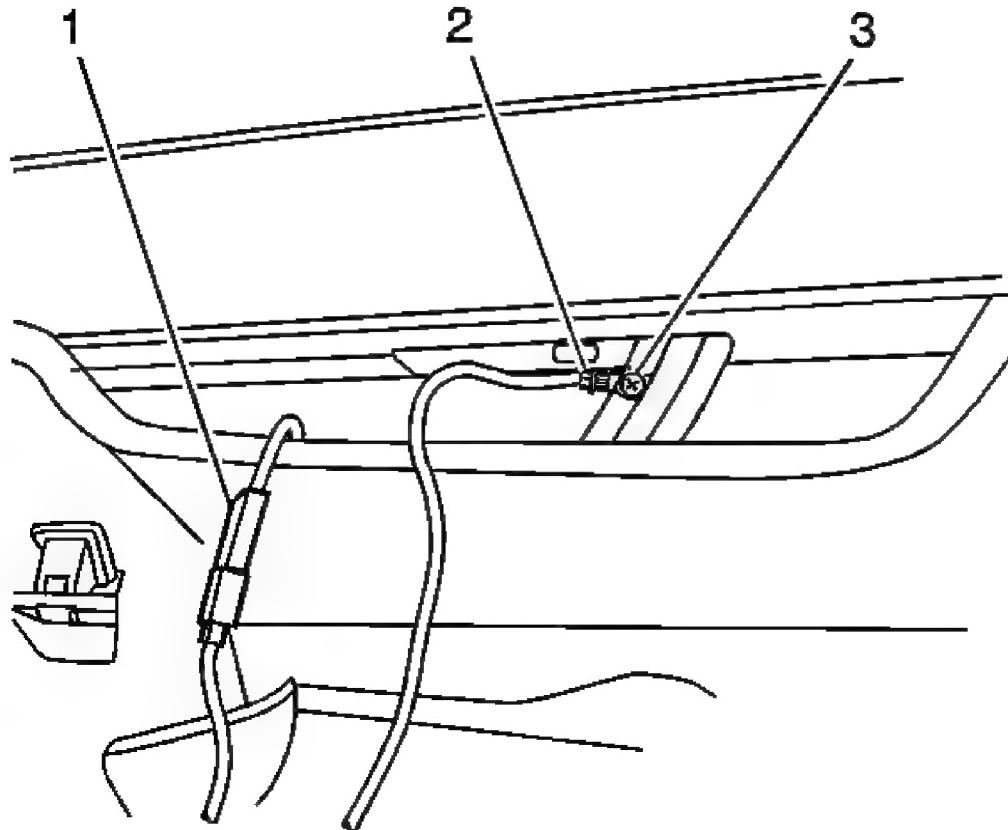
3. Lower the trim cover (5).
4. Remove the switch (4) from the cover.
5. Disconnect the motor/actuator electrical connector (3).



**Fig. 42: Locating Electrical Components**  
Courtesy of GENERAL MOTORS CORP.

6. Remove the ground screw (3) and ground wire (2) from the header in behind the motor/actuator.
7. Disconnect the main feed electrical connector (1).
8. Remove the sunroof switch from the vehicle.

**Installation Procedure**



**Fig. 43: Locating Electrical Components**  
Courtesy of GENERAL MOTORS CORP.

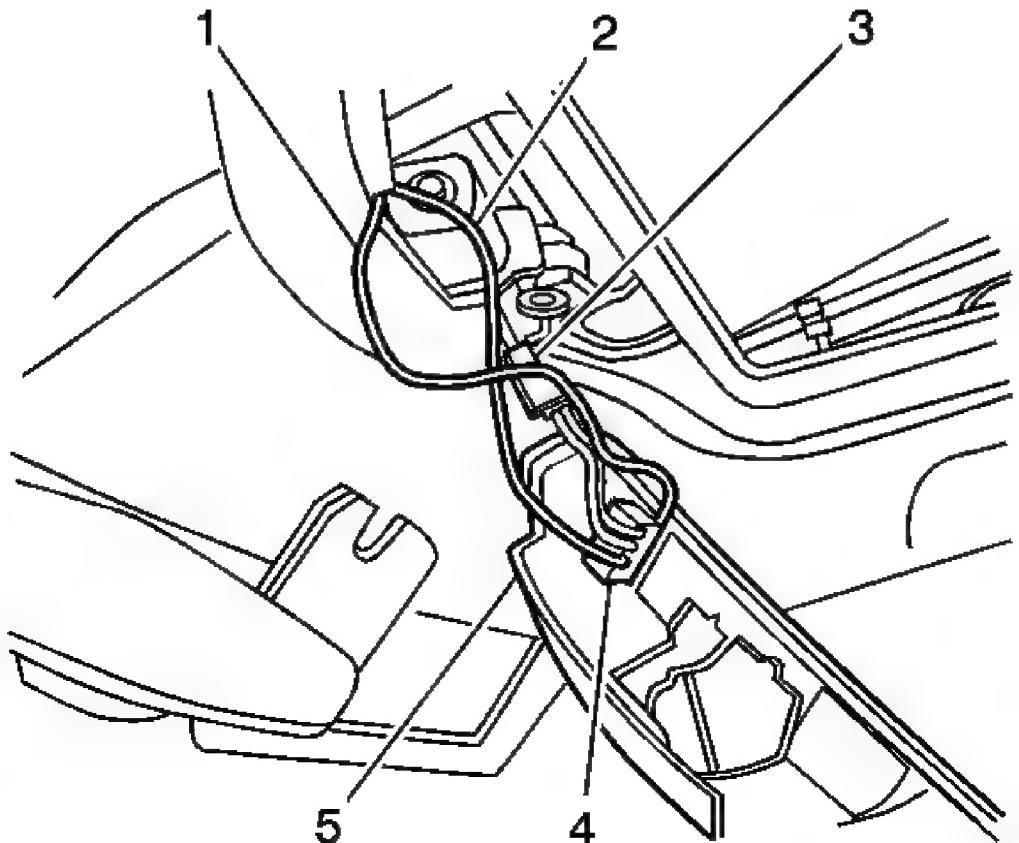
1. Position the ground wire (2) to the header.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

2. Install the ground screw (3).

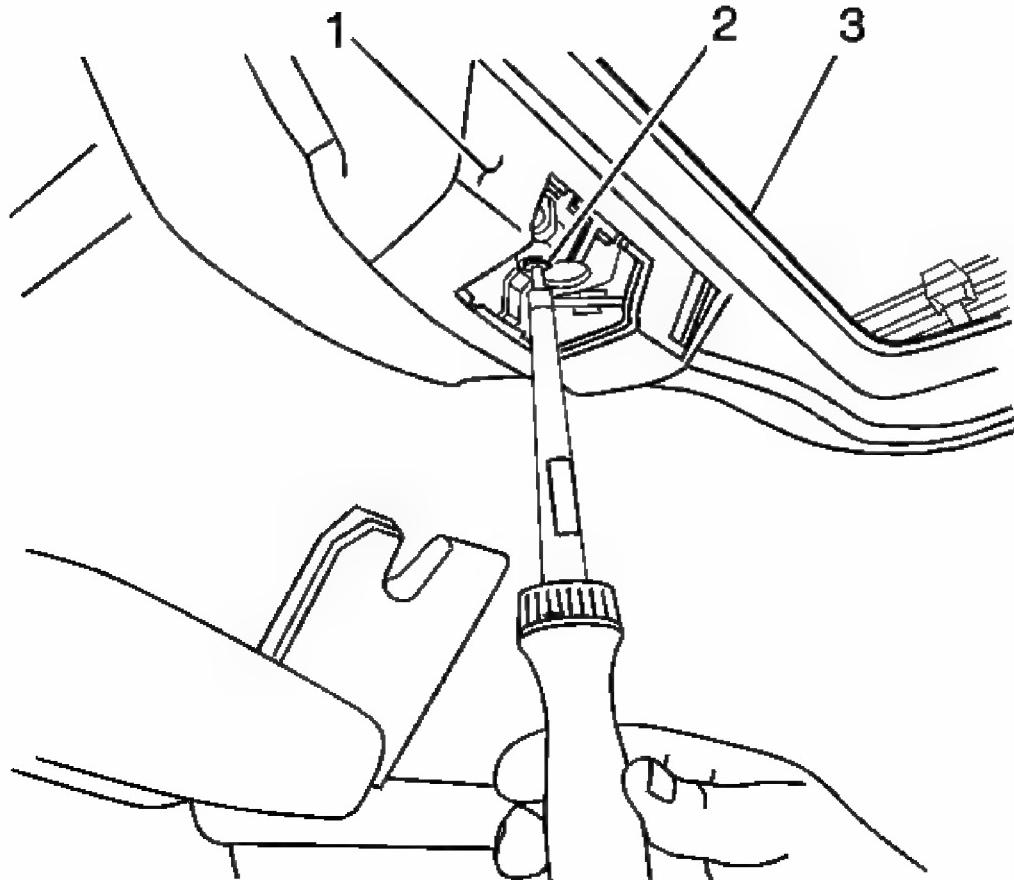
**Tighten:** Tighten the ground screw to 1.5 N.m (13 lb in).

3. Connect the main feed electrical connector (1).



**Fig. 44: Locating Trim Cover Components**  
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector (3).
5. Operate the function of the sunroof switch (4).



**Fig. 45: View Of Motor/Actuator Trim Cover**

Courtesy of GENERAL MOTORS CORP.

6. Install the switch into the motor/actuator trim cover (5).

**IMPORTANT: Ensure the wires are positioned away from the trim cover attachment screw.**

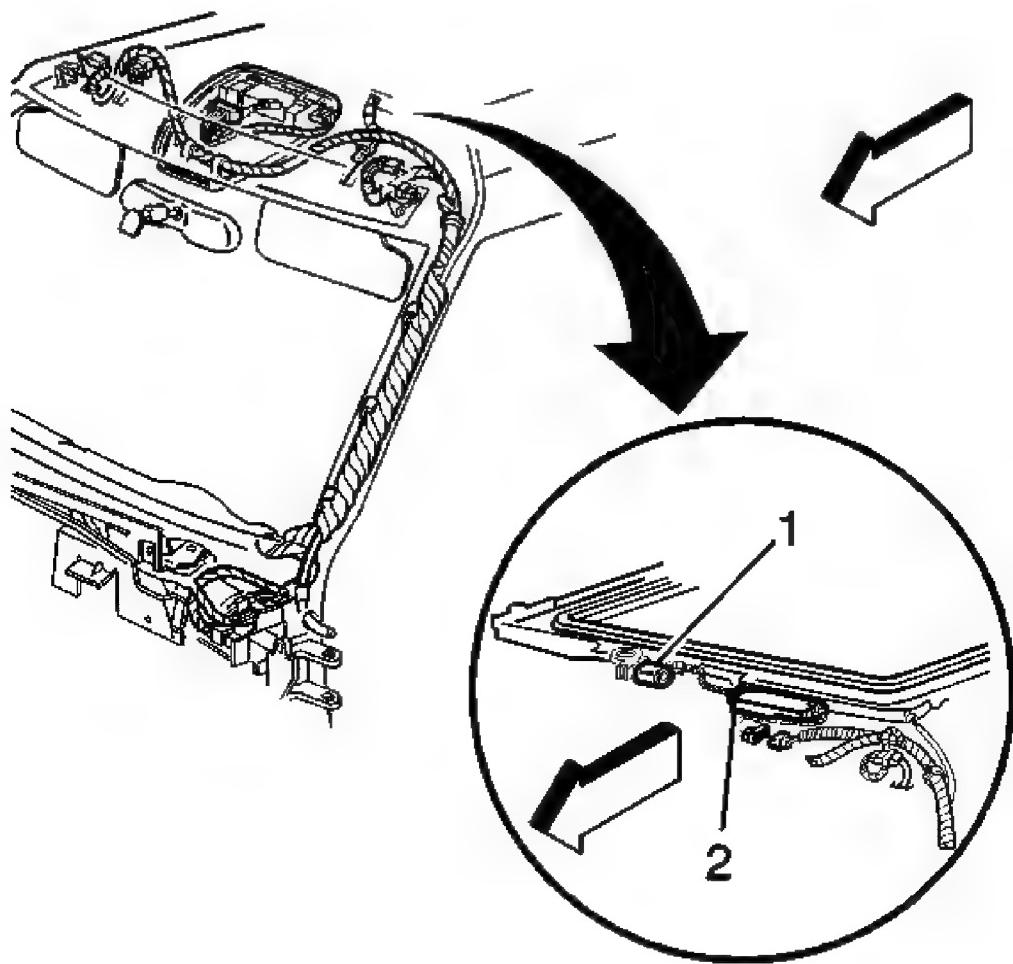
7. Position the cover to the sunroof panel window garnish molding (3).
8. Install the motor/actuator trim cover screw (2).

**Tighten:** Tighten the screw to 1.5 N.m (13 lb in).

9. Install the motor/actuator service cover.

**Removal Procedure**

1. Remove the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.



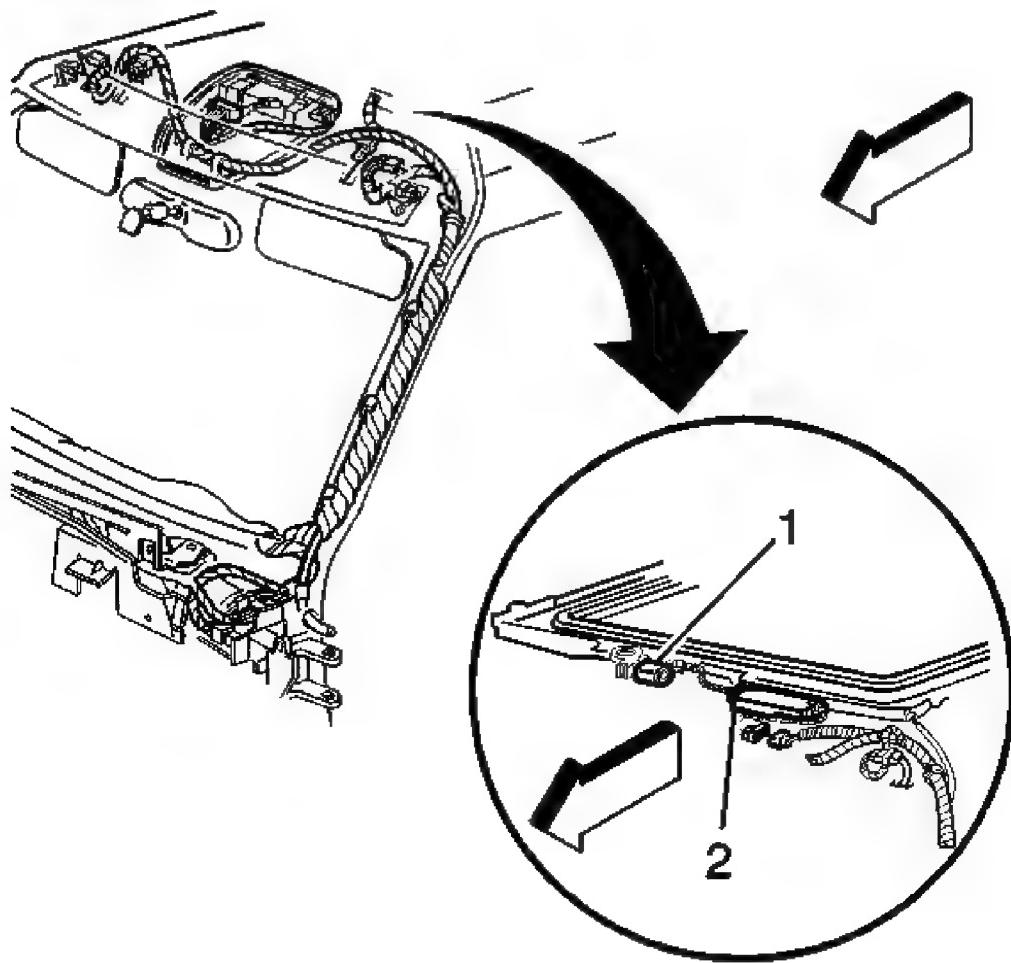
**Fig. 46: Locating Sunroof Motor/Actuator Components**  
Courtesy of GENERAL MOTORS CORP.

2. Remove the straps that retain the wiring harness.
3. Disconnect the electrical connectors, as needed.
4. Remove the screws that retain the sunroof motor/actuator (1) to the sunroof assembly.

**IMPORTANT: Do not move the sunroof mechanism while the motor/actuator is not in place.**

5. Remove the sunroof motor/actuator from the vehicle.

**Installation Procedure**



**Fig. 47: Locating Sunroof Motor/Actuator Components**  
Courtesy of GENERAL MOTORS CORP.

1. Install the sunroof motor/actuator (1) to the vehicle.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

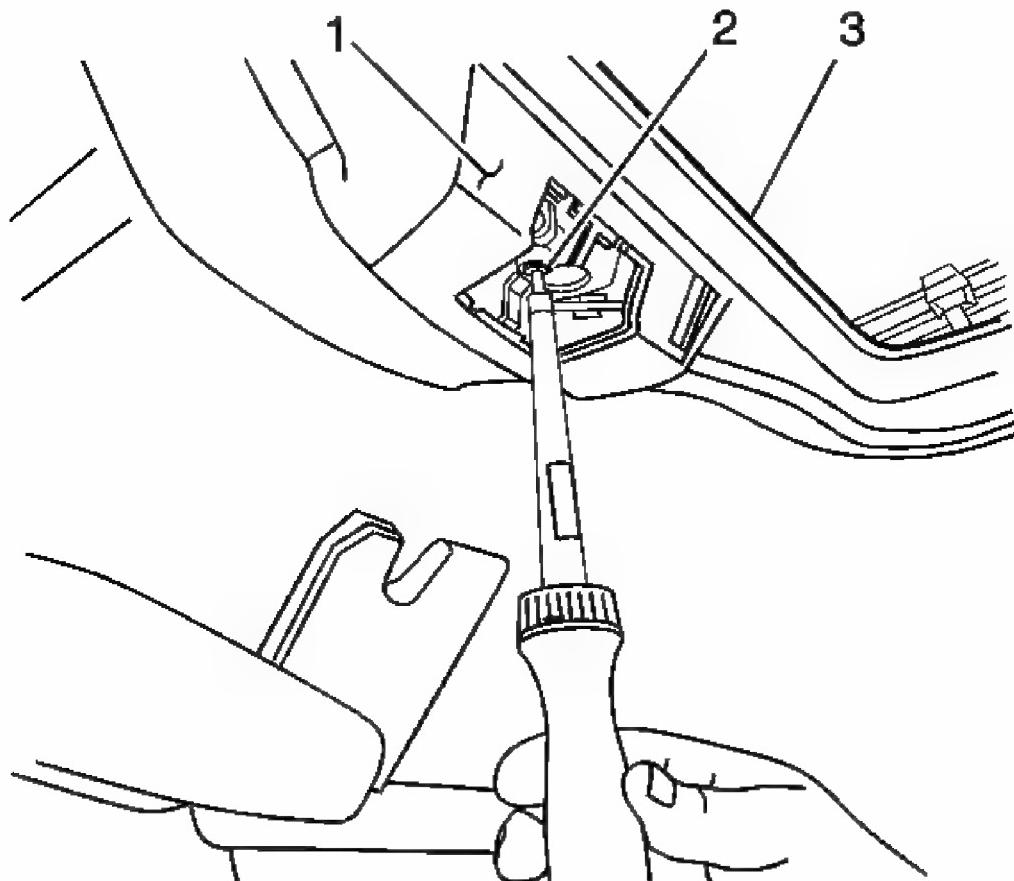
2. Install the screws that retain the sunroof motor/actuator (1) to the sunroof assembly.

**Tighten:** Tighten the sunroof motor/actuator screws to 3.5 N.m (31 lb in).

3. Connect the electrical connectors, as needed.
4. Install the straps that retain the wiring harness.
5. Install the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.

### **SUNROOF MOTOR/ACTUATOR REPLACEMENT (ZRX/XTREME W/ CF5)**

#### **Removal Procedure**

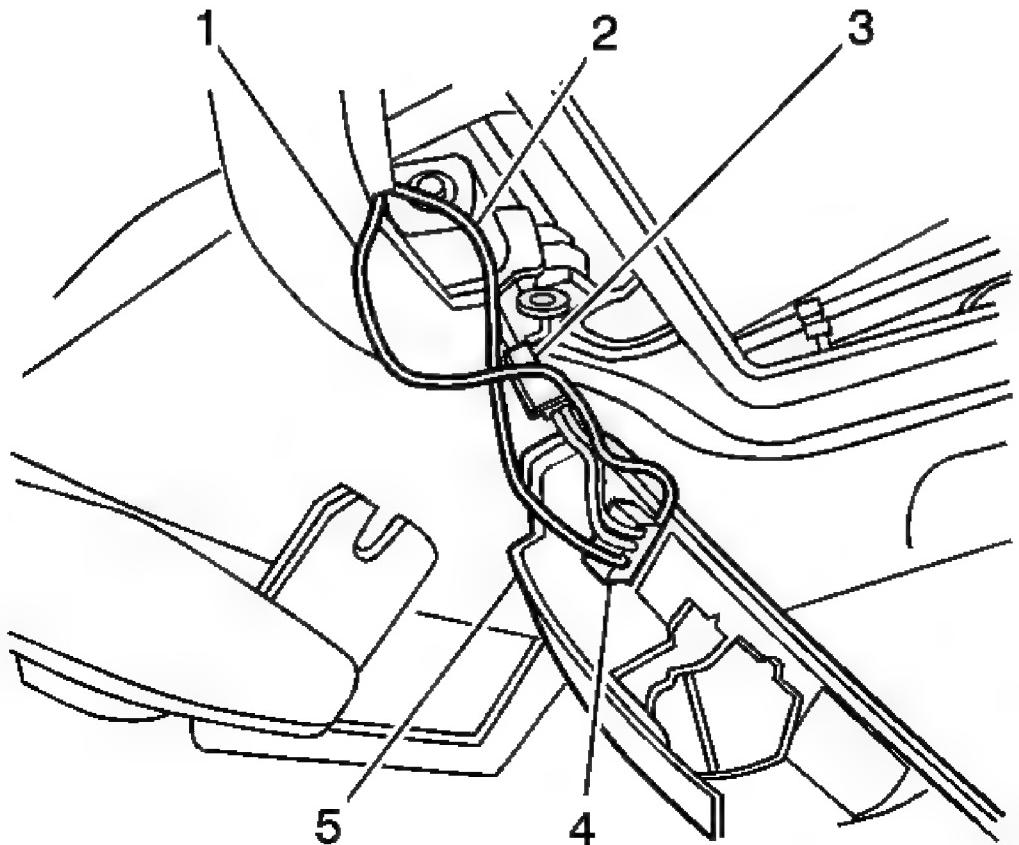


**Fig. 48: View Of Motor/Actuator Trim Cover**  
Courtesy of GENERAL MOTORS CORP.

1. With a medium flat-bladed tool, remove the service cover.
2. Remove the motor/actuator trim cover screw (2).

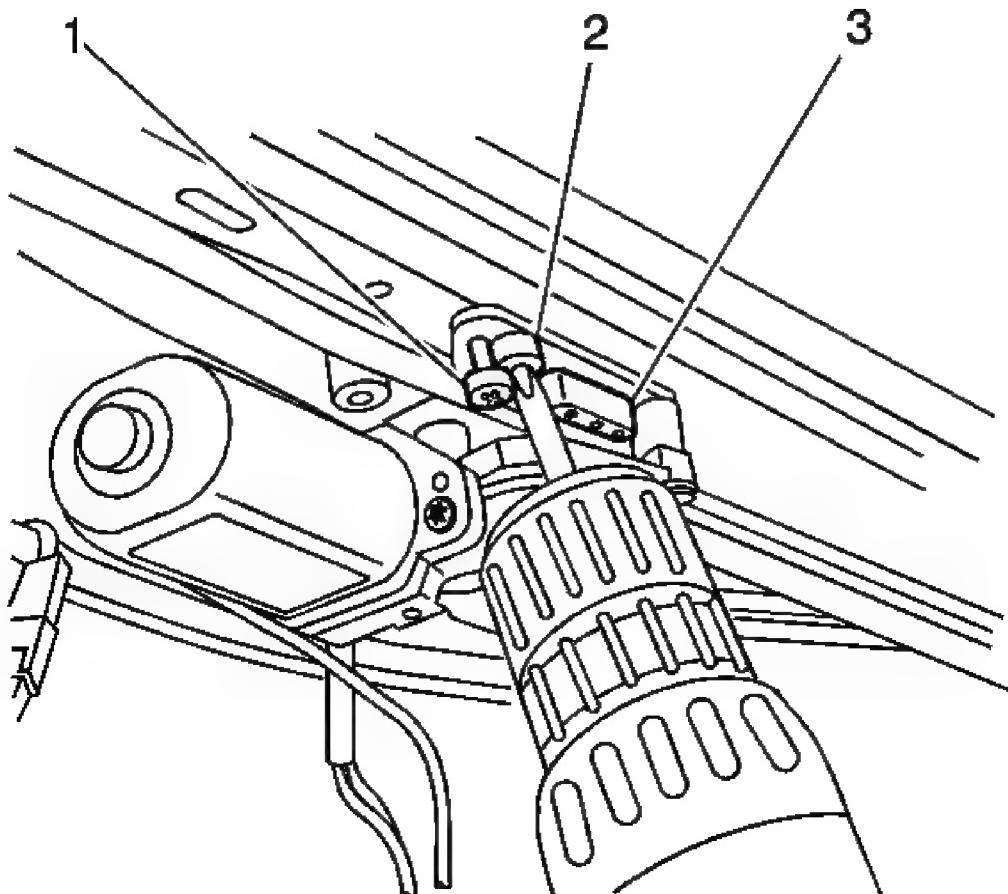
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**Fig. 49: Locating Trim Cover Components**  
Courtesy of GENERAL MOTORS CORP.

3. Lower the trim cover (1) and remove the sunroof switch (4).
4. Disconnect the electrical connector from the motor (3).

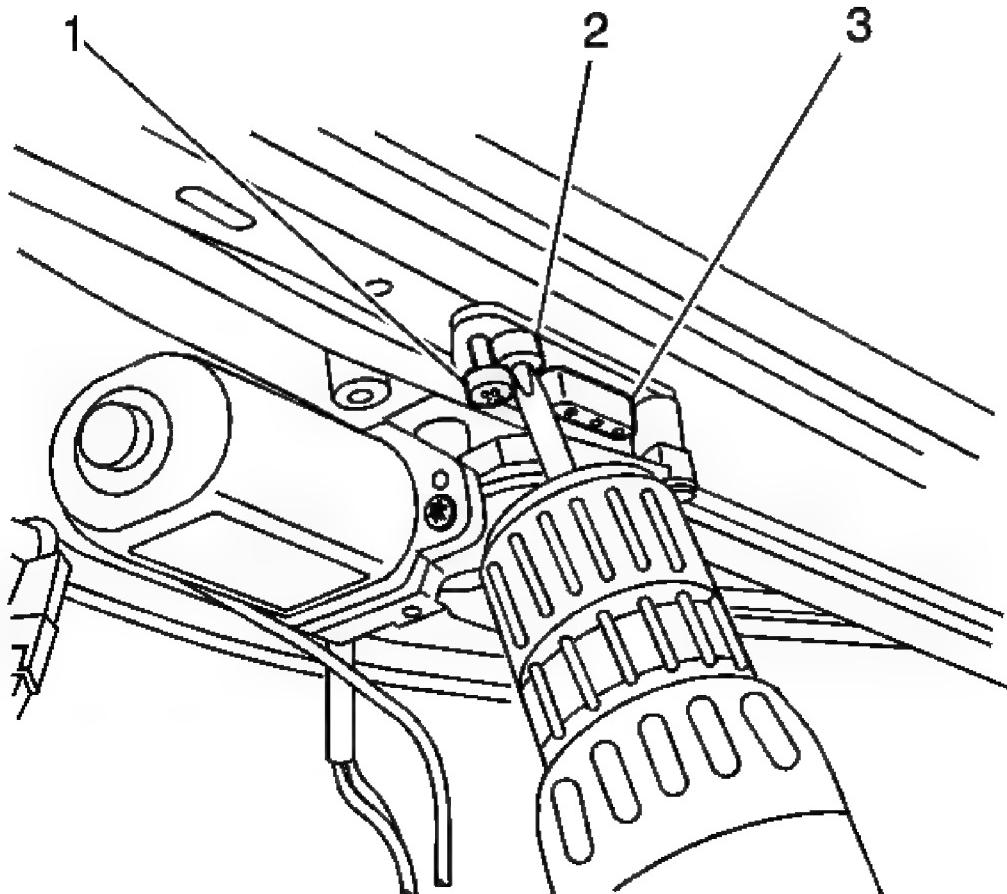


**Fig. 50: Locating Motor/Actuator Assembly Components**  
**Courtesy of GENERAL MOTORS CORP.**

5. Remove the 2 outer motor/actuator screws (2).
6. Let the drive tube motor block (3) hang on the assembly screw (1).
7. Remove the motor from the drive tube motor block.

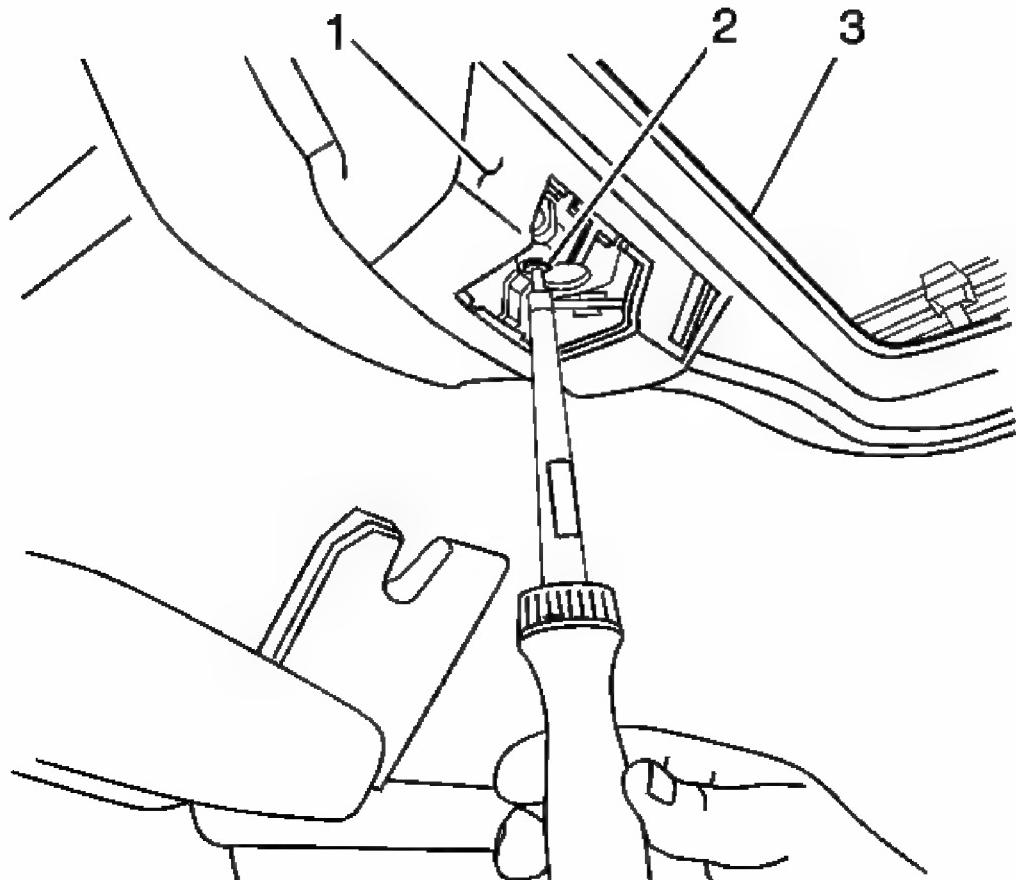
#### **Installation Procedure**

1. Carefully lift open the sunroof window, with the palm of the hand.
2. Place hands at the front edge of the sunroof window.
3. Push rearward on both sides of the sunroof to the full open position.
4. Verify the leading edge of the sunroof window is parallel with the rear edge of the sunroof mainframe.



**Fig. 51: Locating Motor/Actuator Assembly Components**  
Courtesy of GENERAL MOTORS CORP.

5. Install the sunroof motor/actuator to the drive tube motor block (3).
6. Position the motor/actuator to the drive tube motor block.
7. Apply Loctite(R) Blue, GM P/N 12345382 (Canadian P/N 10953489) or equivalent, to the motor/actuator screw threads.



**Fig. 52: View Of Motor/Actuator Trim Cover**

Courtesy of GENERAL MOTORS CORP.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

8. Install the screws that retain the sunroof motor/actuator to the sunroof drive tube motor block (3).

**Tighten:** Tighten the screws to 4.0 N.m (35 lb in).

9. Connect the electrical connector to the motor/actuator.
10. Ensure the electrical harness is tucked behind the motor/actuator prior to installing the garnish trim cover screw.
11. Install the motor/actuator garnish trim cover (1) to the window panel garnish molding (3).

12. Install the cover screw (2).

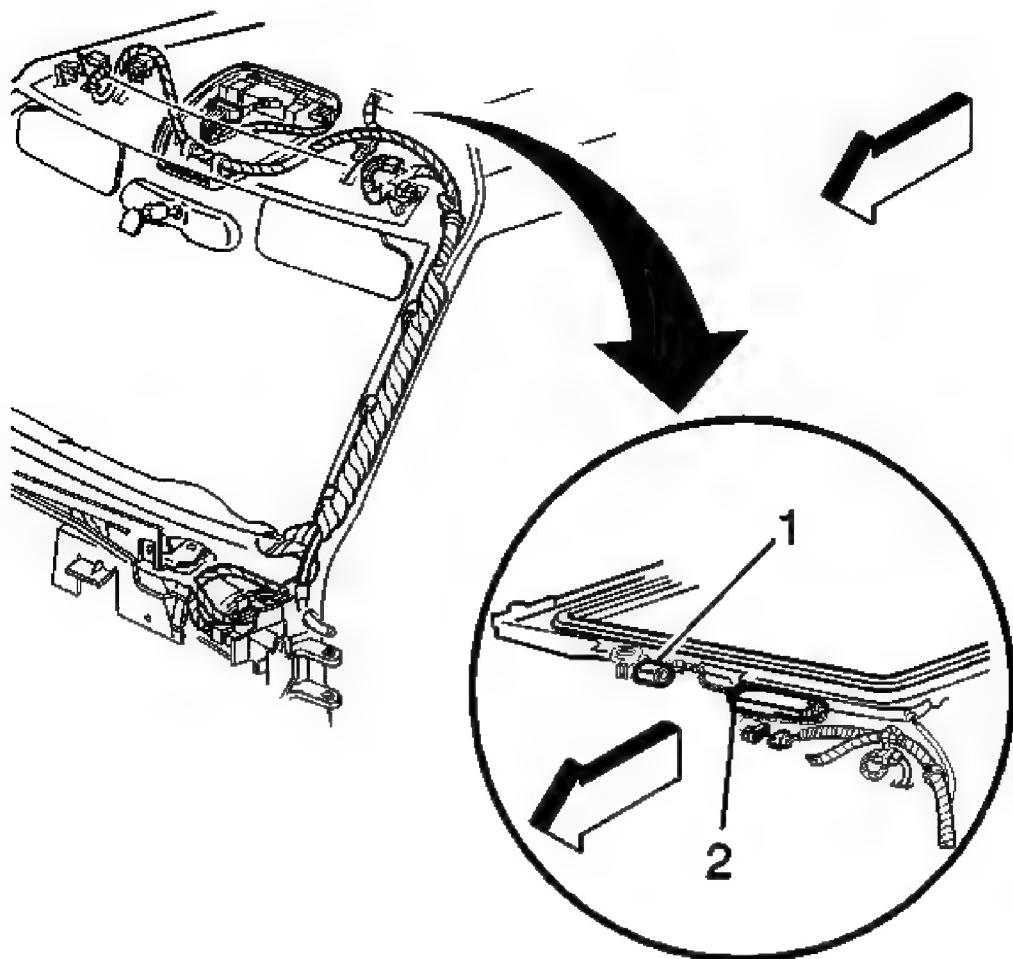
**Tighten:** Tighten the screw to 1.5 N.m (13 lb in).

13. Install the motor/actuator service cover.
14. Test the function of the sunroof through several cycles.

## **SUNROOF CONTROL MODULE REPLACEMENT**

### **Removal Procedure**

1. Remove the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.

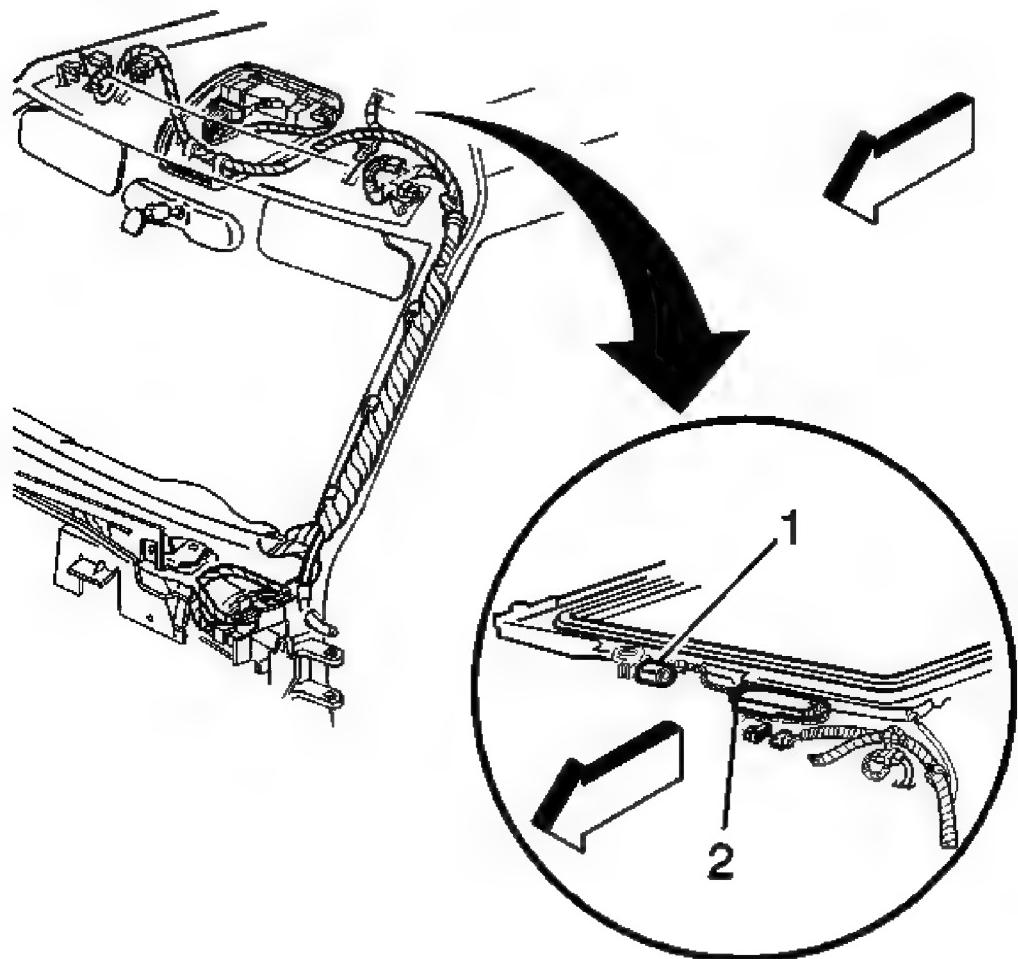


**Fig. 53: Locating Sunroof Motor/Actuator Components**

**Courtesy of GENERAL MOTORS CORP.**

2. Remove the straps that retain the wiring harness.
3. Disconnect the electrical connectors, as needed.
4. Slide the sunroof control module (2) to the right in order to remove the sunroof control module from the vehicle.

**Installation Procedure**



**Fig. 54: Locating Sunroof Motor/Actuator Components**  
**Courtesy of GENERAL MOTORS CORP.**

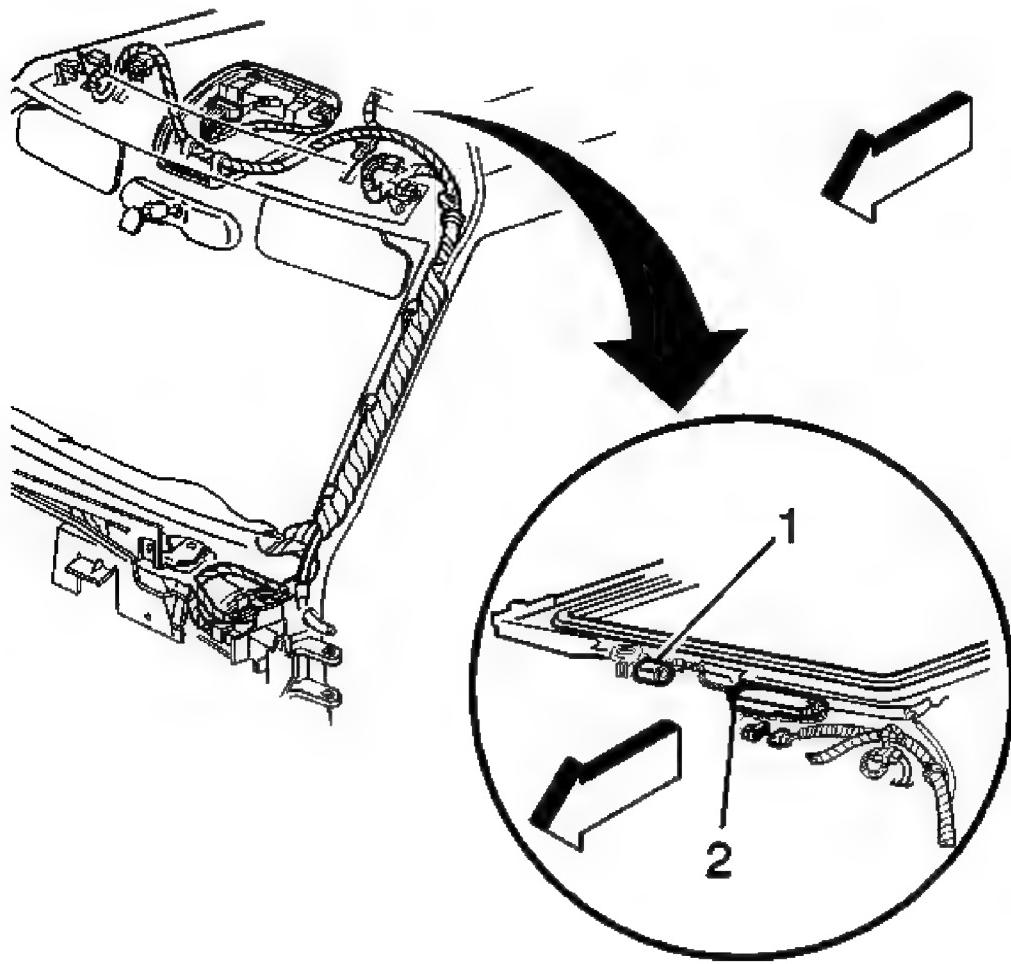
1. Slide the sunroof control module (2) to the left in order to install the sunroof control module to the vehicle.
2. Connect the electrical connectors, as needed.

3. Install the straps that retain the wiring harness.
4. Install the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.

### **SUNROOF WIRING HARNESS REPLACEMENT (CF5)**

#### **Removal Procedure**

1. Remove the negative battery cable.
2. Remove the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.

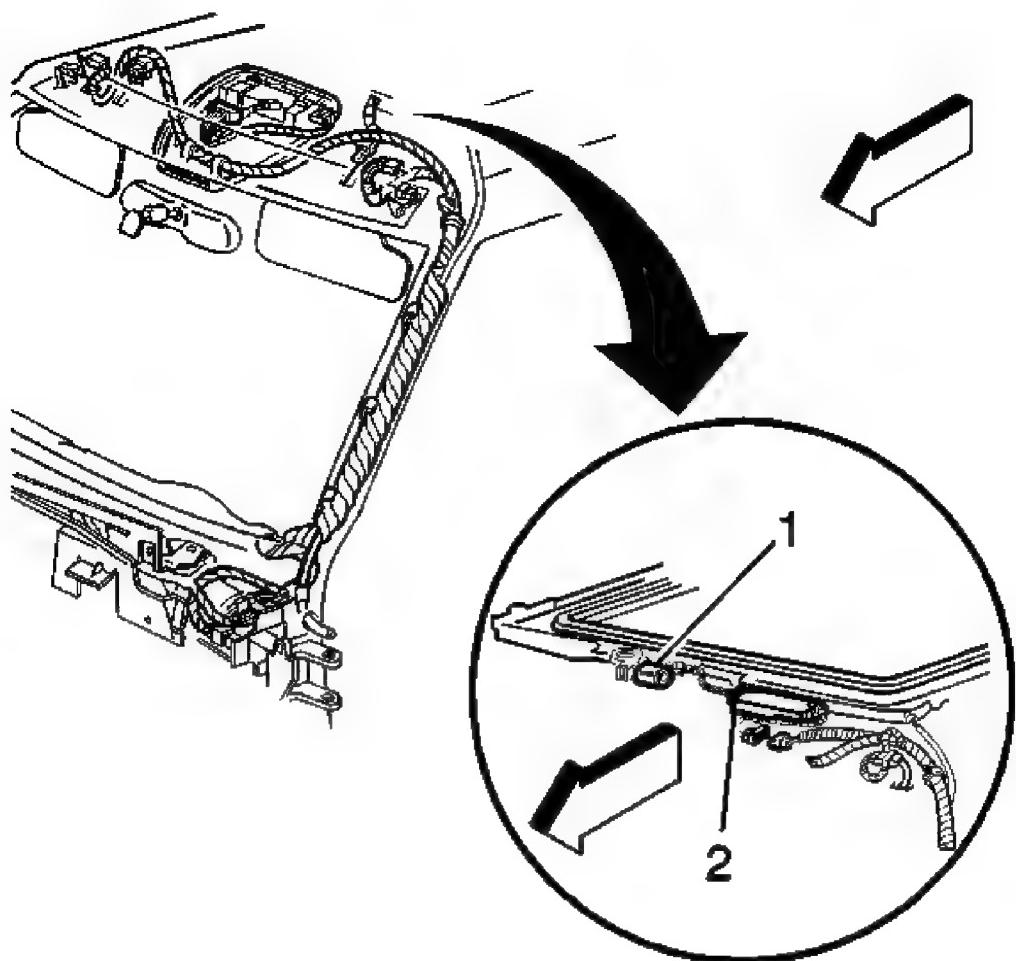


**Fig. 55: Locating Sunroof Motor/Actuator Components**  
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the wiring harness from the sunroof module (2).
4. Remove the rosebud clips securing the dome lamp/sunroof harness to the left front side door opening frame.
5. Remove the tape securing the sunroof harness to the dome lamp harness
6. Disconnect the wiring harness from the body wiring harness.
7. Remove the wiring harness from the vehicle.

**Installation Procedure**

1. Install the wiring harness to the dome lamp harness by wrapping the harnesses with electrical tape.
2. Install the wiring harness rosebud clips to the left front side door opening frame.
3. Connect the wiring harness from the body wiring harness.



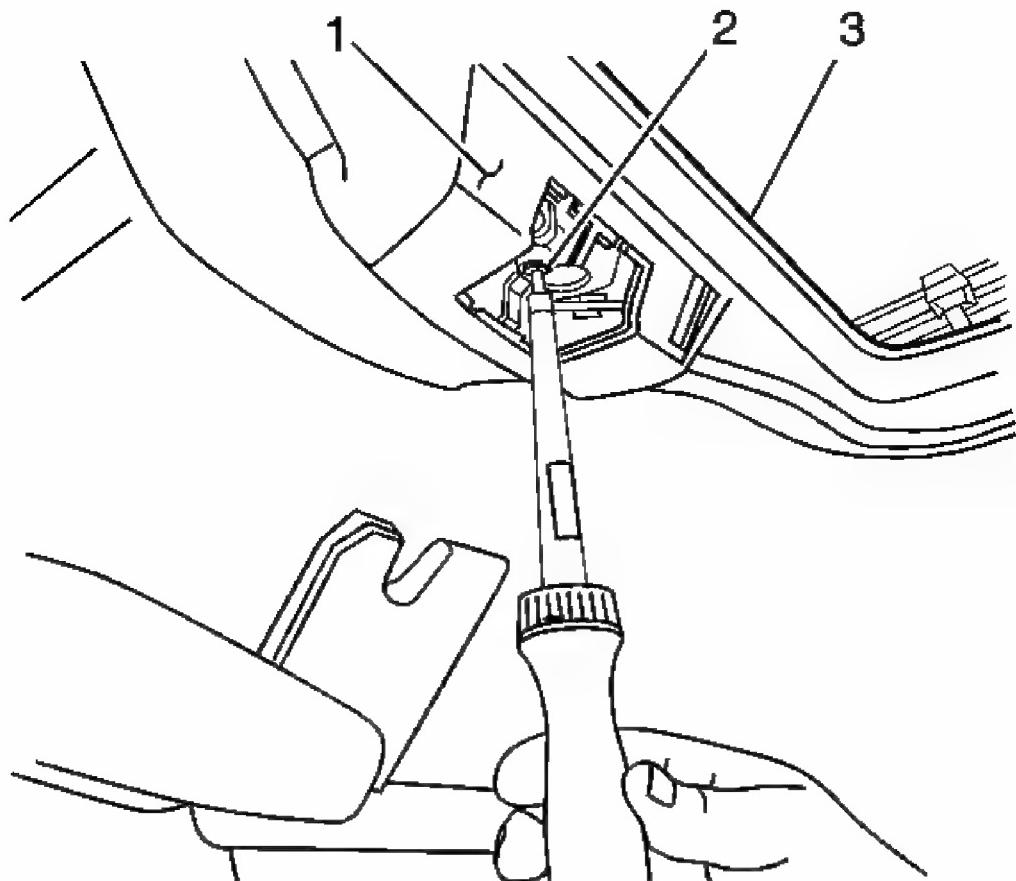
**Fig. 56: Locating Sunroof Motor/Actuator Components**  
Courtesy of GENERAL MOTORS CORP.

4. Connect the wiring harness from the sunroof module (2).
5. Install the headliner. Refer to **Headliner Replacement (Pickup)** or **Headliner Replacement (Utility)** in Interior Trim.
6. Install the negative battery cable.

**SUNROOF WIRING HARNESS REPLACEMENT (ZRX/XTREME W/ CF5)**

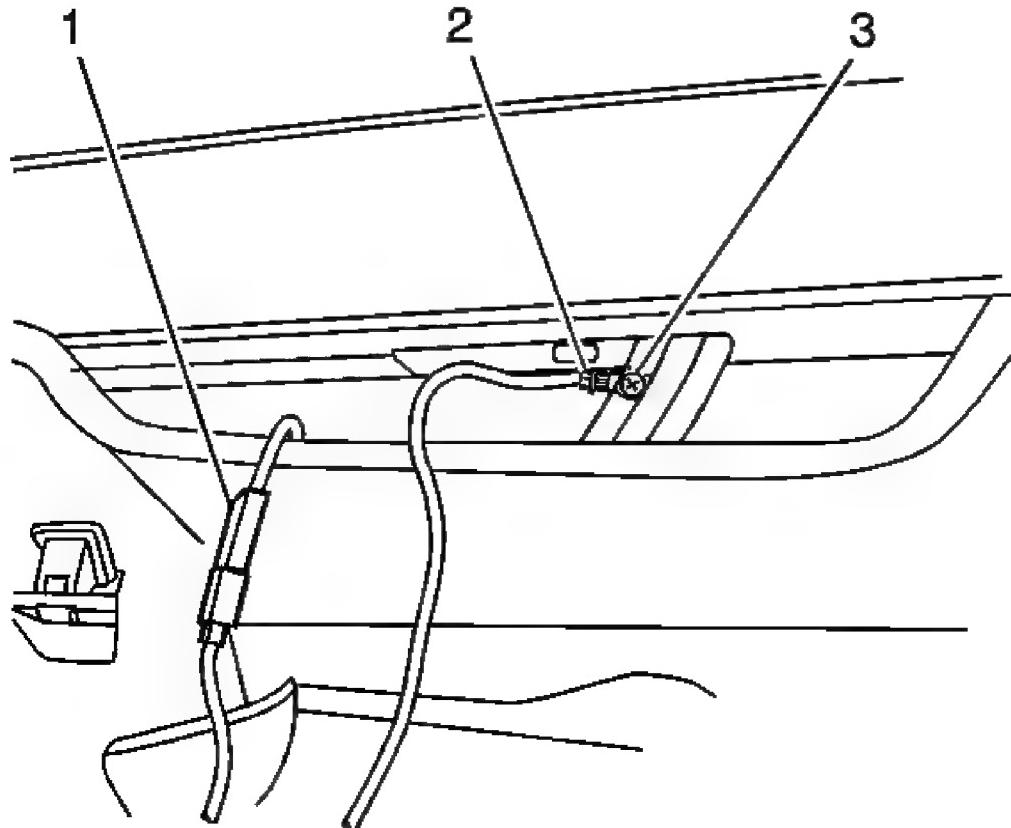
**Removal Procedure**

1. Remove the 15A fuse from the sunroof fused jumper wire at the lower fuse block.



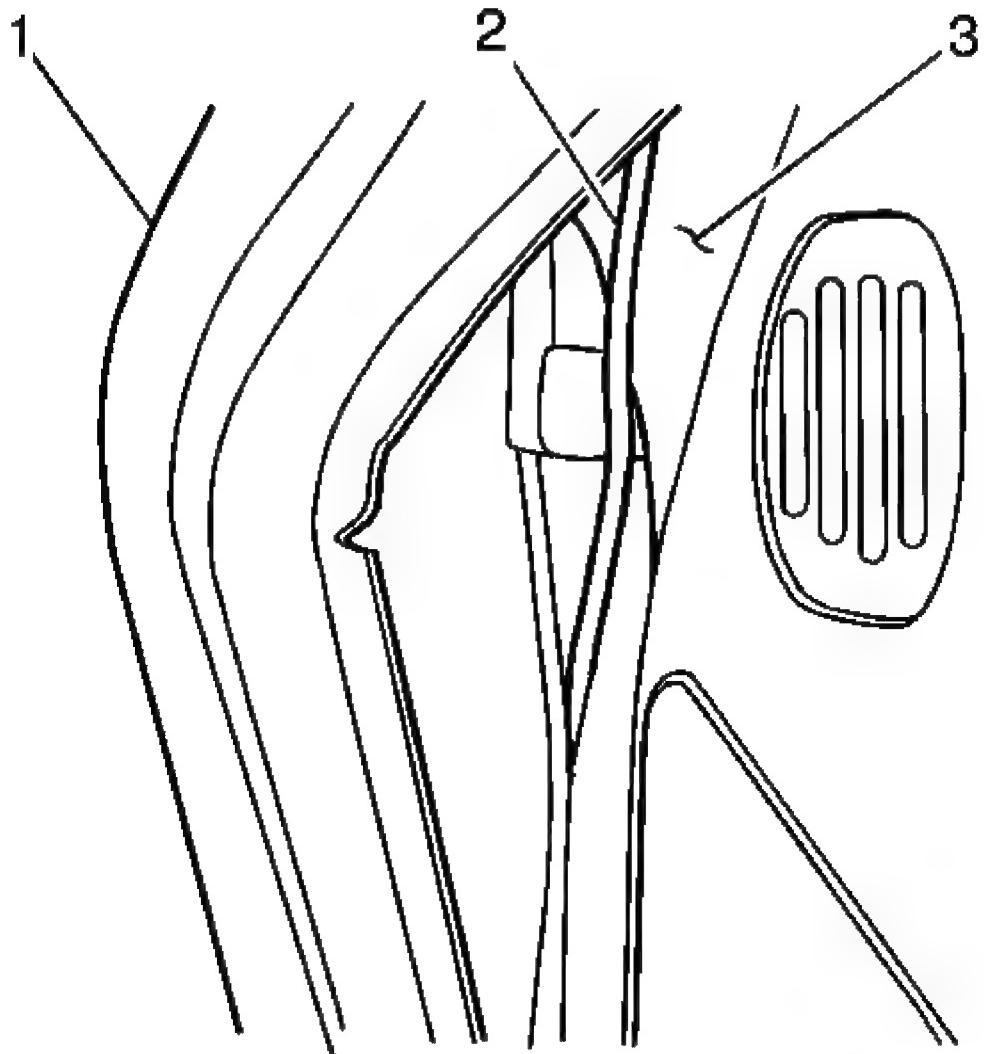
**Fig. 57: View Of Motor/Actuator Trim Cover**  
Courtesy of GENERAL MOTORS CORP.

2. Remove the sunroof panel window garnish molding (3). Refer to **Garnish Molding Replacement - Sunroof Panel Window (ZRX/Xtreme w/ CF5)** in Interior Trim.



**Fig. 58: Locating Electrical Components**  
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the sunroof power feed connector (1) at the front header.
4. Remove the LF windshield pillar garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** in Interior Trim.
5. Remove the LF sunshade and retainer. Refer to **Sunshade Replacement** in Interior Trim.



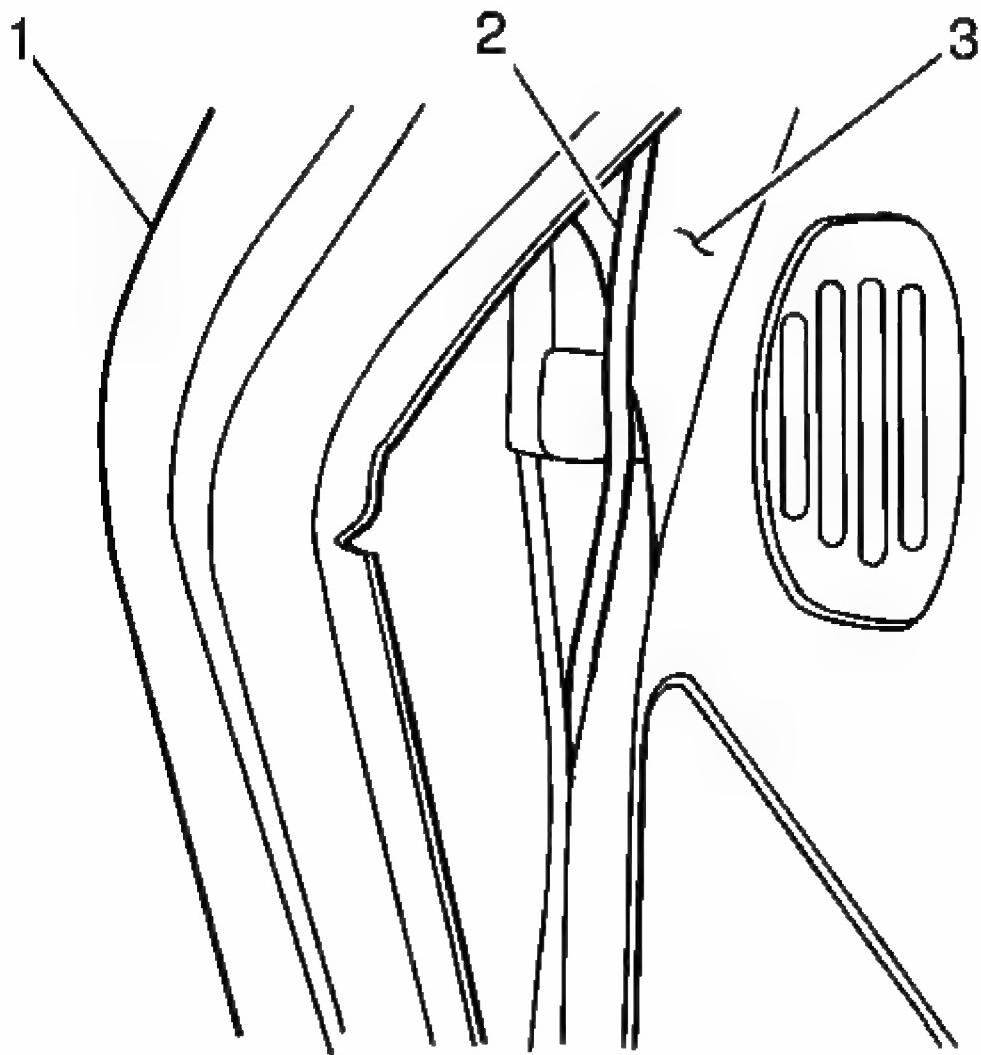
**Fig. 59: Identifying Routing Of Sunroof Main Feed Wire**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT: Note the routing of the sunroof main feed wire on the body harness routed down the windshield pillar.**

6. Cut the tie straps securing the sunroof power feed wire to the body harness.
7. Cut the gray connector off the old main feed wire.
8. Tie the old wire onto the new main feed wire in order to aid in the location of the new wire.

9. Pull rearward, the LF center section of the door weather seal (1).
10. Located underneath the instrument panel, pull the new wire (2) up through and next to the left side of the instrument panel end cap (3).

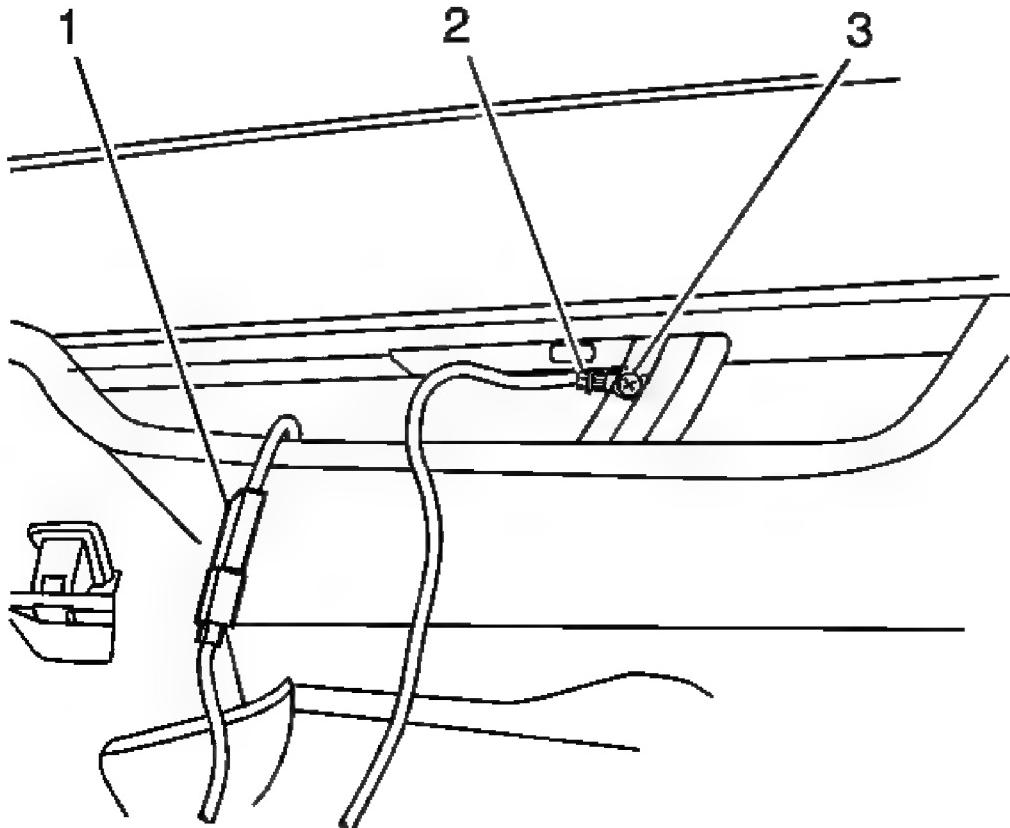
**Installation Procedure**



**Fig. 60: Identifying Routing Of Sunroof Main Feed Wire**  
Courtesy of GENERAL MOTORS CORP.

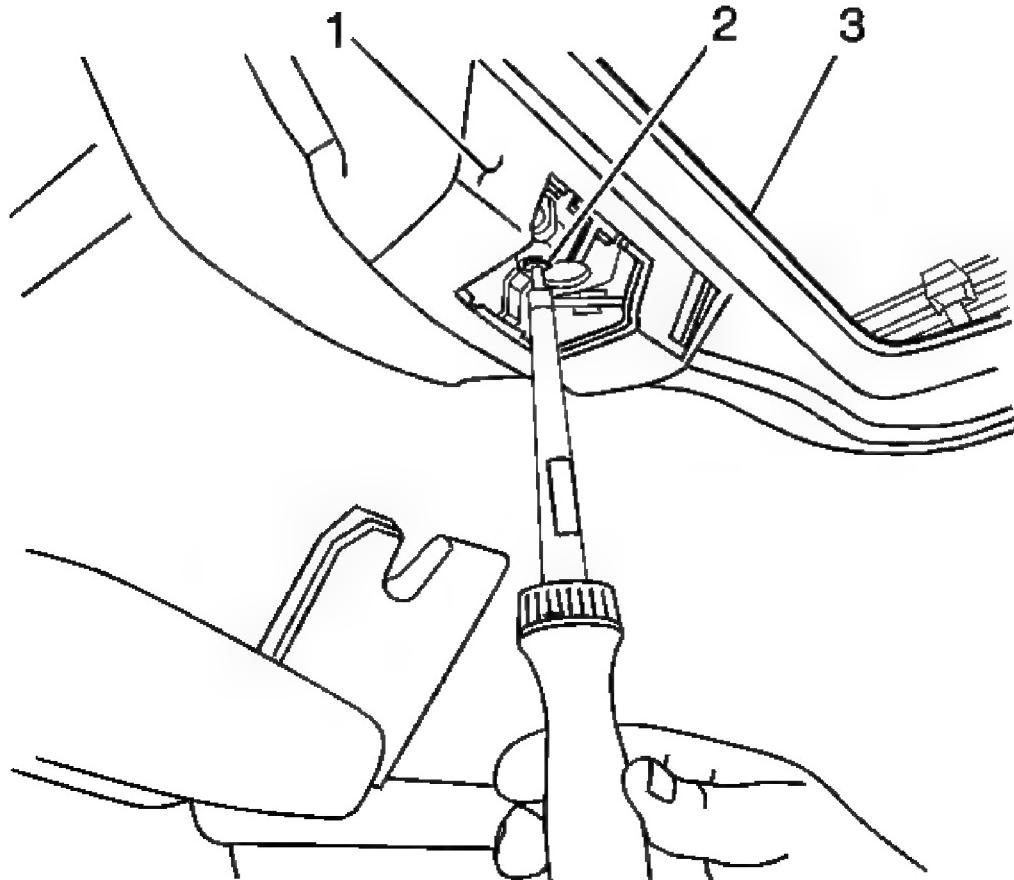
1. Secure the sunroof wire to the windshield pillar body harness with new tie straps.
2. Position the new wire across the left front upper headliner area.

3. Connect the gray connector end of the wire (2) to the fused jumper at the lower fuse block.



**Fig. 61: Locating Electrical Components**  
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector (1) to the sunroof switch connector.
5. Install the LF windshield pillar garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** in Interior Trim.
6. Install the LF sunshade and retainer. Refer to **Sunshade Replacement** in Interior Trim
7. Reposition the LF door seal on the pinchweld flange.



**Fig. 62: View Of Motor/Actuator Trim Cover**

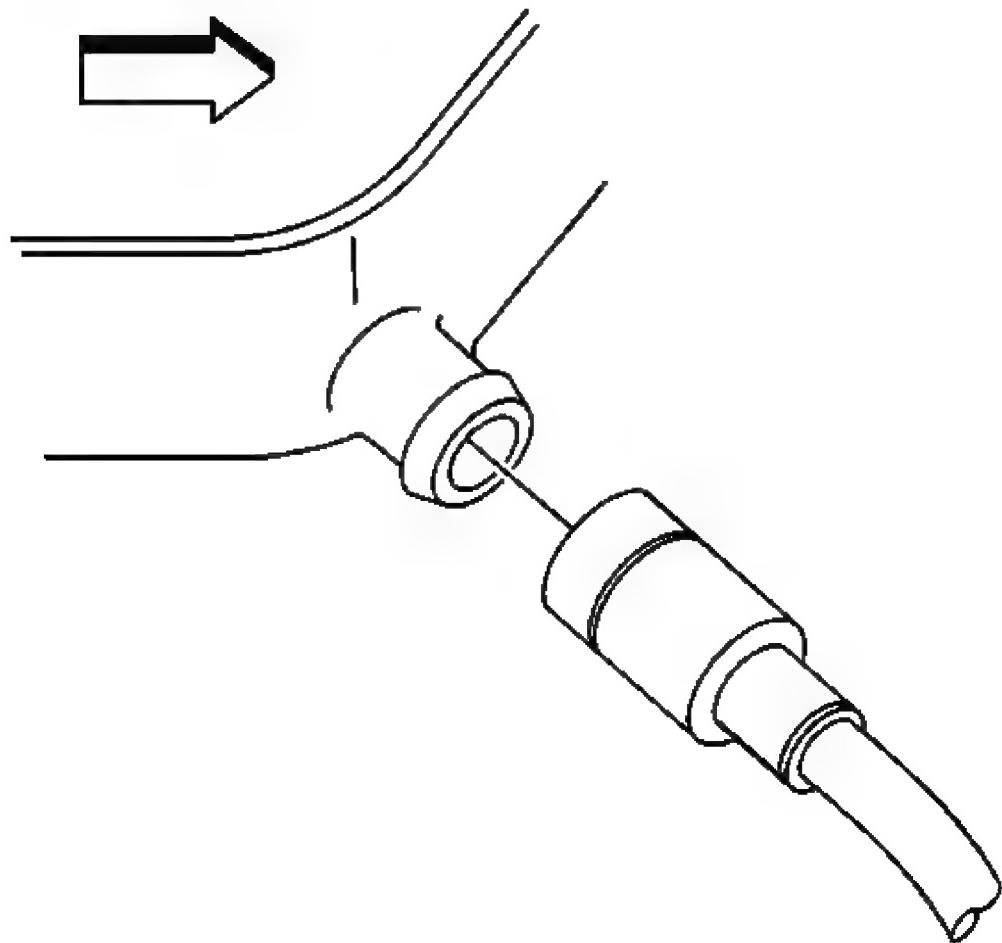
Courtesy of GENERAL MOTORS CORP.

8. Install the sunroof panel window garnish molding (3). Refer to [Garnish Molding Replacement - Sunroof Panel Window \(ZRX/Xtreme w/ CF5\)](#) in Interior Trim.
9. Install the 15A fuse to the jumper harness as removed.

#### **SUNROOF MODULE ASSEMBLY REPLACEMENT (CF5)**

##### **Removal Procedure**

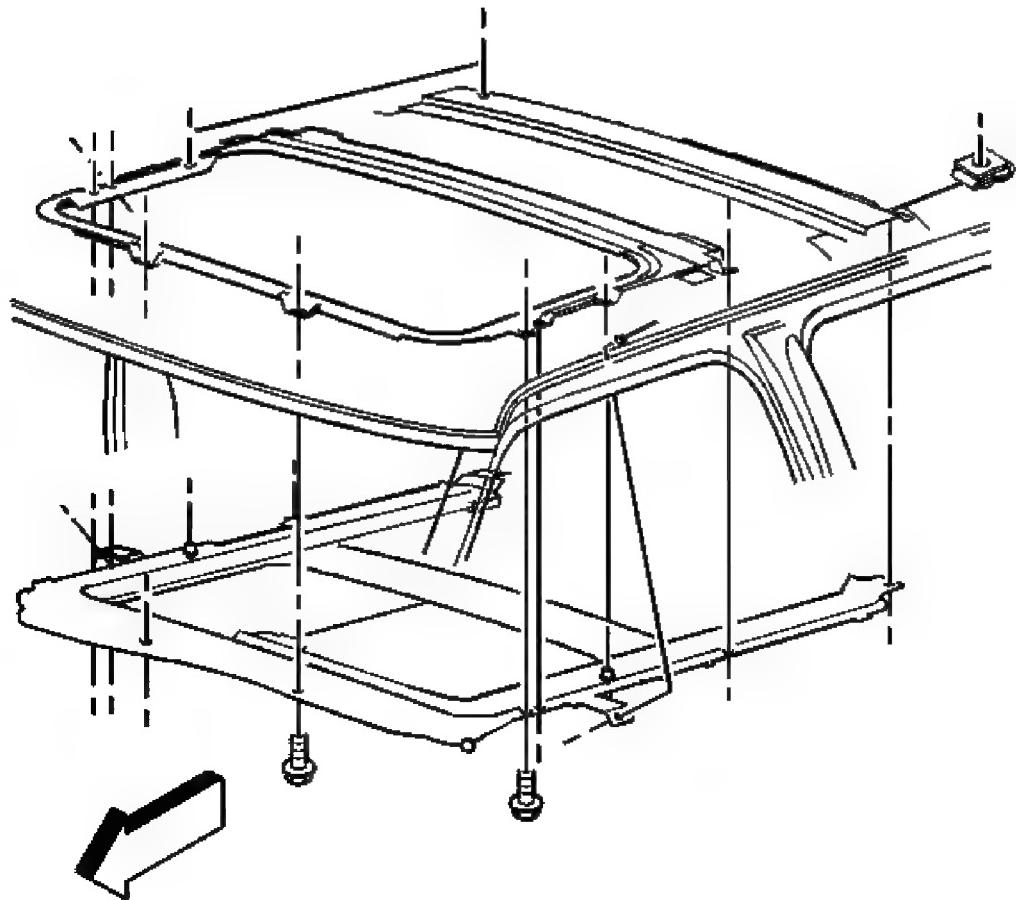
1. Remove the headliner. Refer to [Headliner Replacement \(Pickup\)](#) or [Headliner Replacement \(Utility\)](#) in Interior Trim.



**Fig. 63: View Of Sunroof Drain Hose**

Courtesy of GENERAL MOTORS CORP.

2. Remove the sunroof drain hoses from the sunroof assembly. Refer to [Sunroof Drain Hose Replacement - Front](#) and [Sunroof Drain Hose Replacement - Rear](#).
3. Disconnect the electrical connectors.



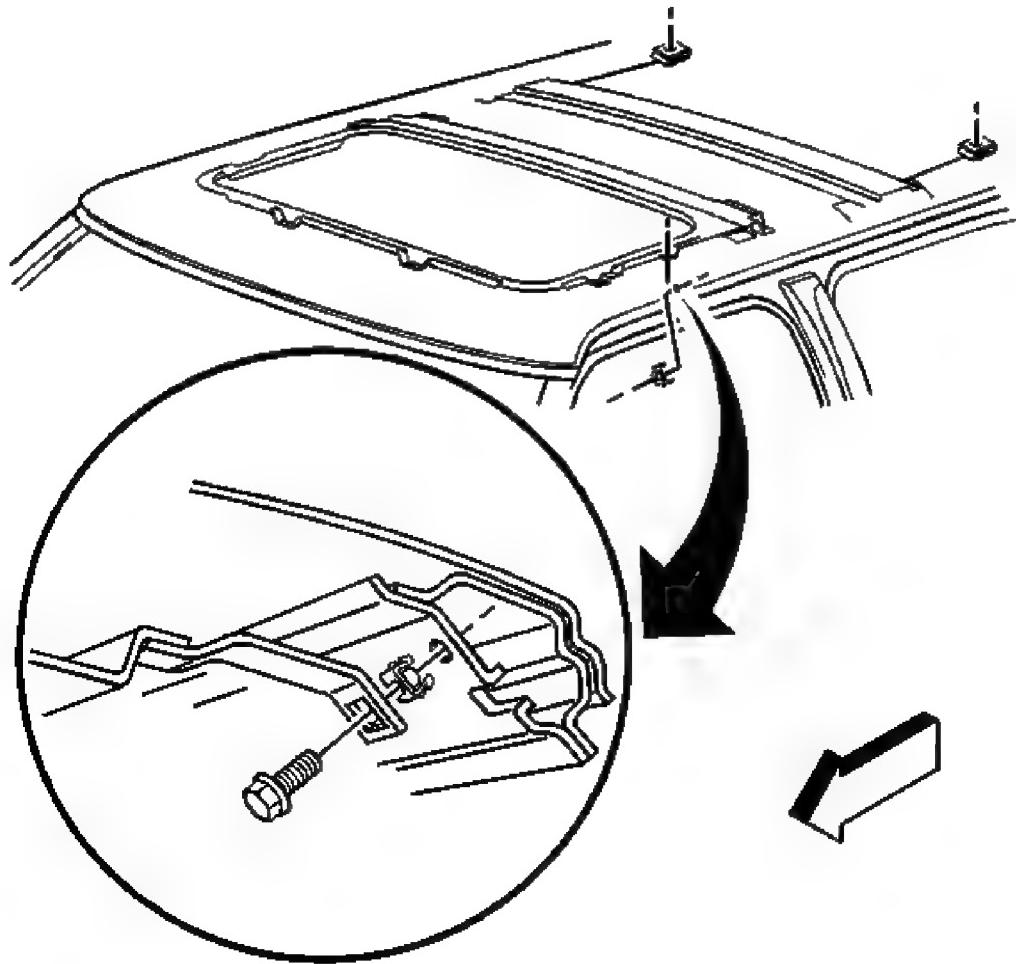
**Fig. 64: View Of Sunroof Module Assembly**  
**Courtesy of GENERAL MOTORS CORP.**

4. Remove the bolts that retain the sunroof module assembly to the roof.
5. Release the retainers that secure the sunroof module assembly to the roof.
6. With an assistant, remove the sunroof module assembly from the vehicle.

**Installation Procedure**

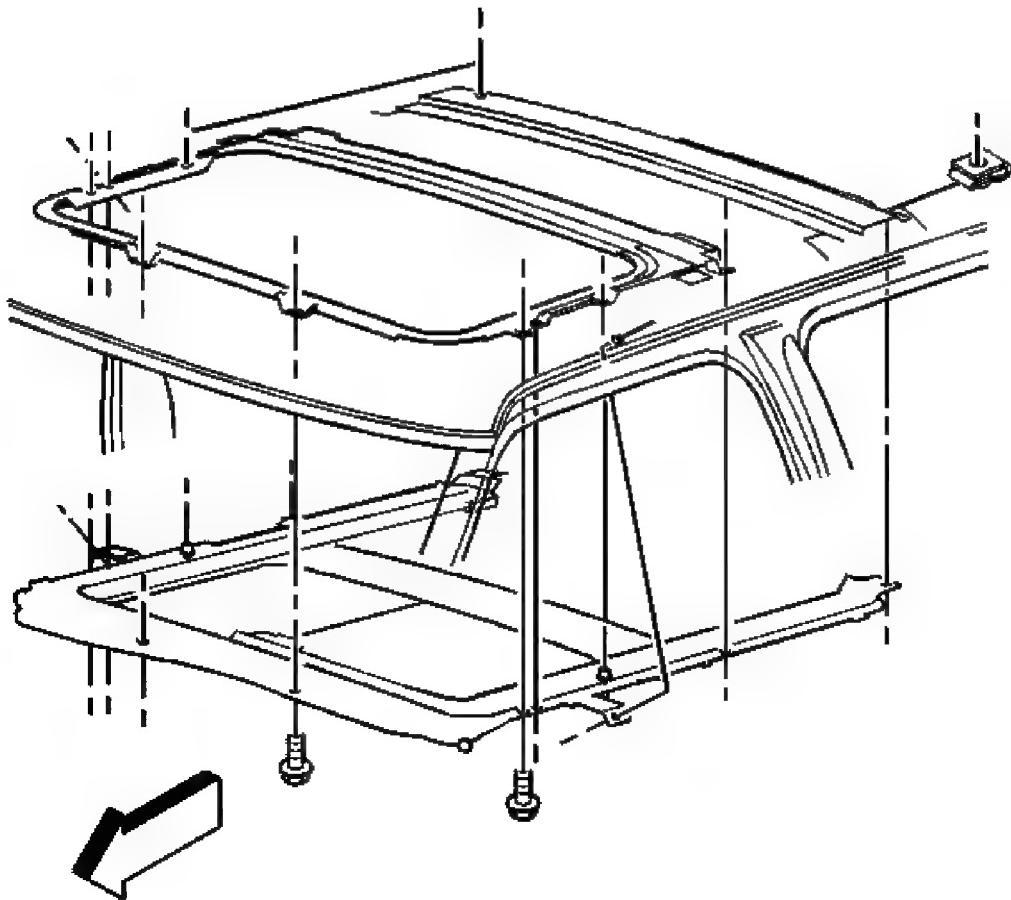
## 2004 Chevrolet S10 Pickup

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma



**Fig. 65: Installing Nuts On Roof Bow & Each Side Rail**  
Courtesy of GENERAL MOTORS CORP.

1. Install 2 nuts on the roof bow and a nut to each side rail.
2. With an assistant, position the sunroof module assembly to the roof.



**Fig. 66: View Of Sunroof Module Assembly**  
Courtesy of GENERAL MOTORS CORP.

3. Use the sunroof retainers in order to secure the sunroof module assembly to the roof.  

The sunroof retainers are used in order to assist in the assembly of the sunroof module assembly at the assembly plant. If a retainer is broken, do not replace the retainer.
  4. Ensure that all broken retainer pieces are removed from the vehicle in order to prevent a rattle noise.
- NOTE:** Refer to Fastener Notice in Cautions and Notices.
5. Install the bolts that retain the sunroof module assembly to the roof.

## 2004 Chevrolet S10 Pickup

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

**Tighten:** Tighten the sunroof module assembly mounting bolts to 9 N.m (80 lb in).

6. Install the sunroof drain hoses to the sunroof module assembly. Refer to [Sunroof Drain Hose Replacement - Front](#) and [Sunroof Drain Hose Replacement - Rear](#).
7. Install the headliner. Refer to [Headliner Replacement \(Pickup\)](#) or [Headliner Replacement \(Utility\)](#) in Interior Trim.
8. Perform the following steps in order to adjust the sunroof window, as needed:
  - A. Loosen the screws that retain the sunroof window to the sunroof module assembly.
  - B. Adjust the fit between the sunroof window and the roof opening.

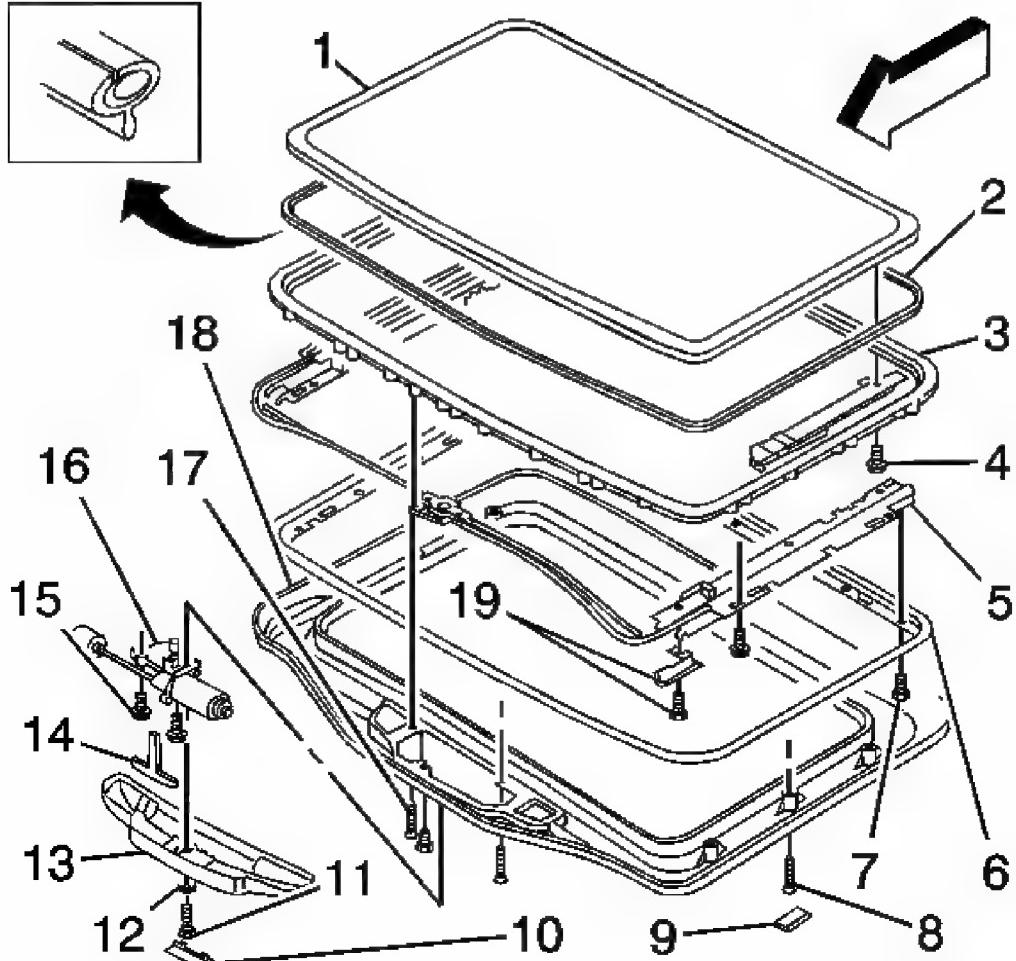
The fit should be equal on both sides.
  - C. Adjust the rear edge of the window slightly higher than the front edge in order to minimize wind noise.
  - D. Secure the sunroof window in position by tightening the screws.

**Tighten:** Tighten the screws to 3.5 N.m (31 lb in).

9. Open and close the sunroof.
10. Inspect the fit of the sunroof window.

### SUNROOF MODULE ASSEMBLY REPLACEMENT (ZRX/XTREME W/ CF5)

#### Removal Procedure



**Fig. 67: Sunroof Disassembled View**

Courtesy of GENERAL MOTORS CORP.

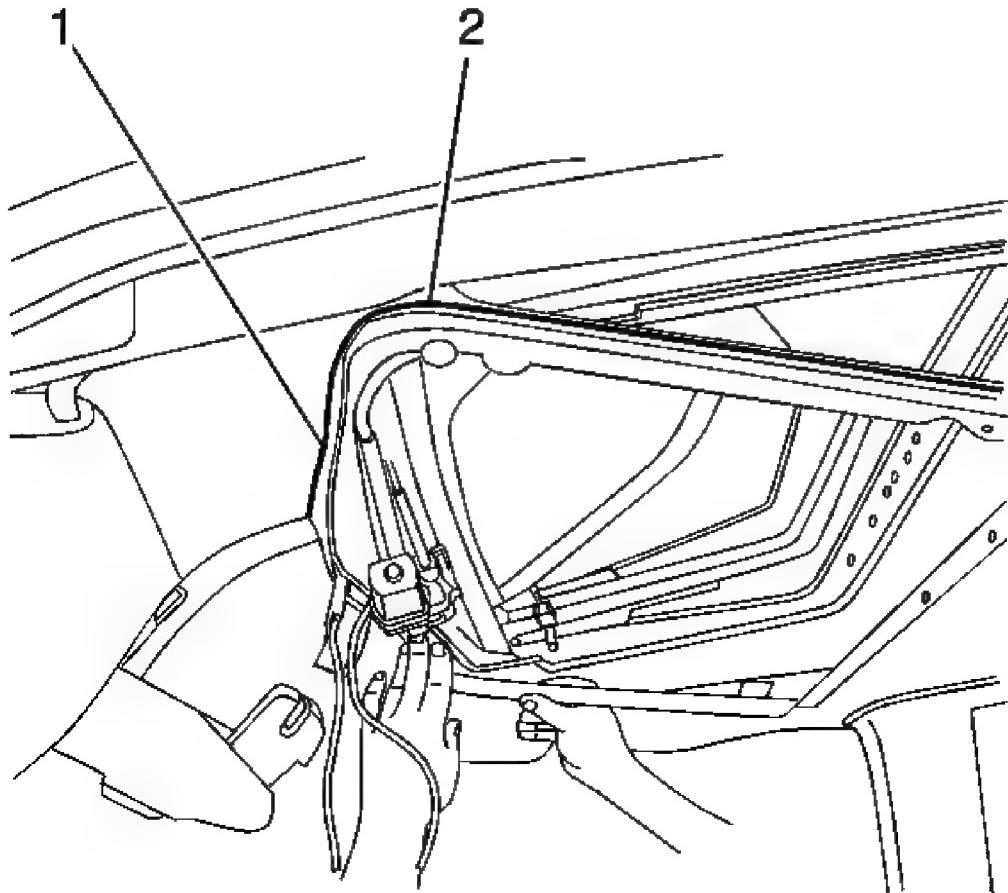
**IMPORTANT:** The sunroof module assembly can be removed without removing the sunroof motor/actuator from the lower frame. The sunroof window will need to be transferred to the new sunroof module assembly after removal.

1. Position the sunroof window.
2. Remove the window panel garnish molding. Refer to [Garnish Molding Replacement - Sunroof Panel Window \(ZRX/Xtreme w/ CF5\)](#) in Interior Trim.
3. Disconnect the electrical connector from the motor/actuator.
4. Remove the ground screw.

**2004 Chevrolet S10 Pickup**

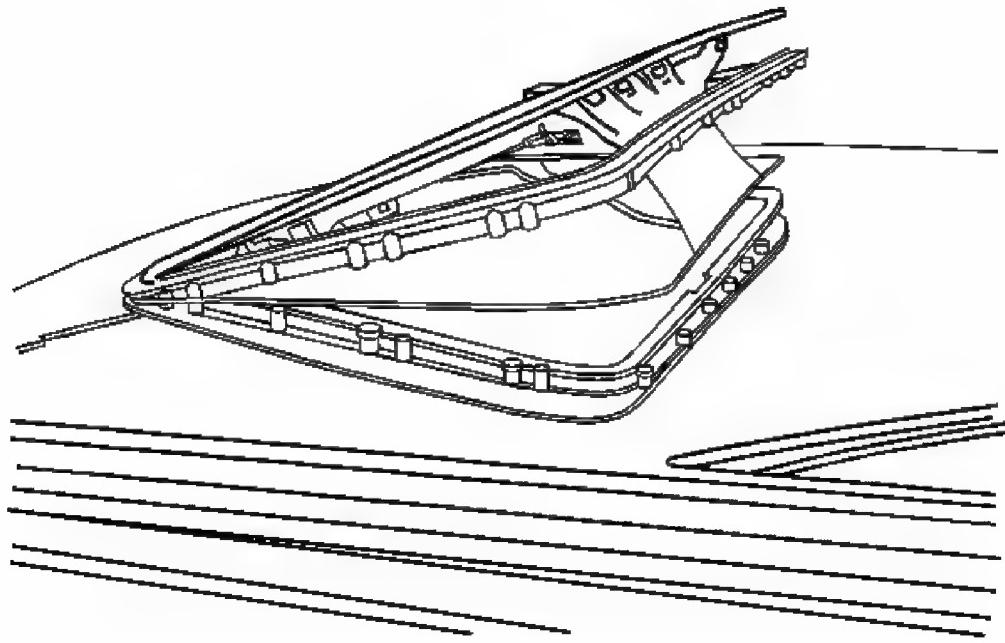
2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma

5. Disconnect the power feed electrical connector.



**Fig. 68: View Of Lower Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

6. Remove the lower frame assembly (2). Refer to Sunroof Frame Replacement (ZRX/XTREME w/ CF5) in Interior Trim.



**Fig. 69: View Of Upper Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

7. With the palm of the hand, lift the upper frame assembly from the roof panel with the sunroof window in place.
8. Remove the upper frame from the vehicle.

#### **Installation Procedure**

**IMPORTANT:** The sunroof assembly is a 2-piece design. Foam tape on the sealing surface of the upper and lower frame ring seals the sunroof assembly from the external elements. Ensure the foam tape is replaced with new foam tape upon installation of either the upper or lower portion of the sunroof frame assemblies.

1. Clean the foam tape from both upper and lower frame assemblies.

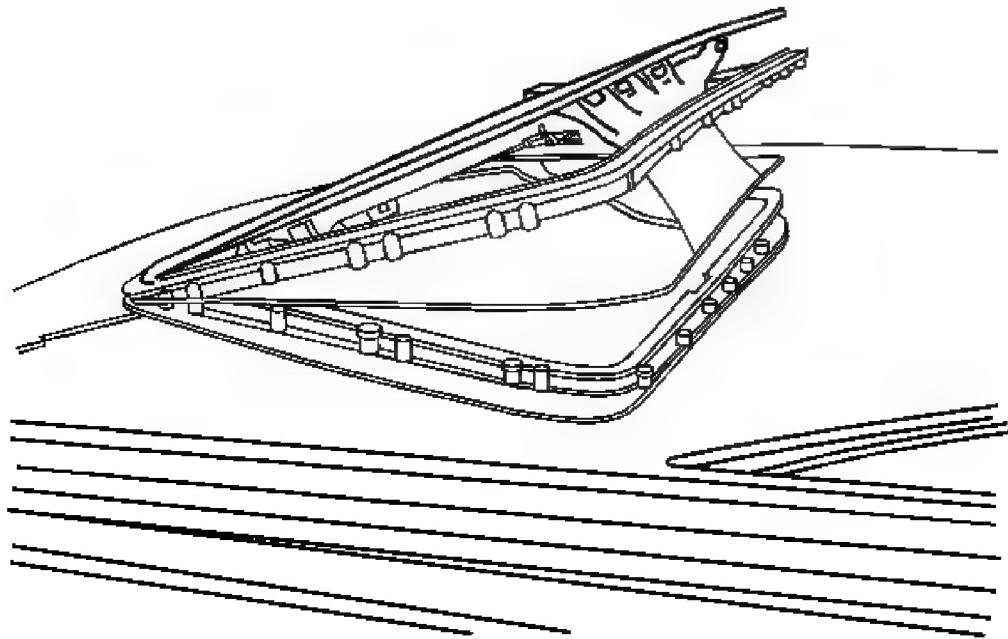
**IMPORTANT:** Be sure to cover the holes in the frame to ensure the fasteners are also sealed.

2. Apply new foam tape to the compression side of the frame assemblies.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

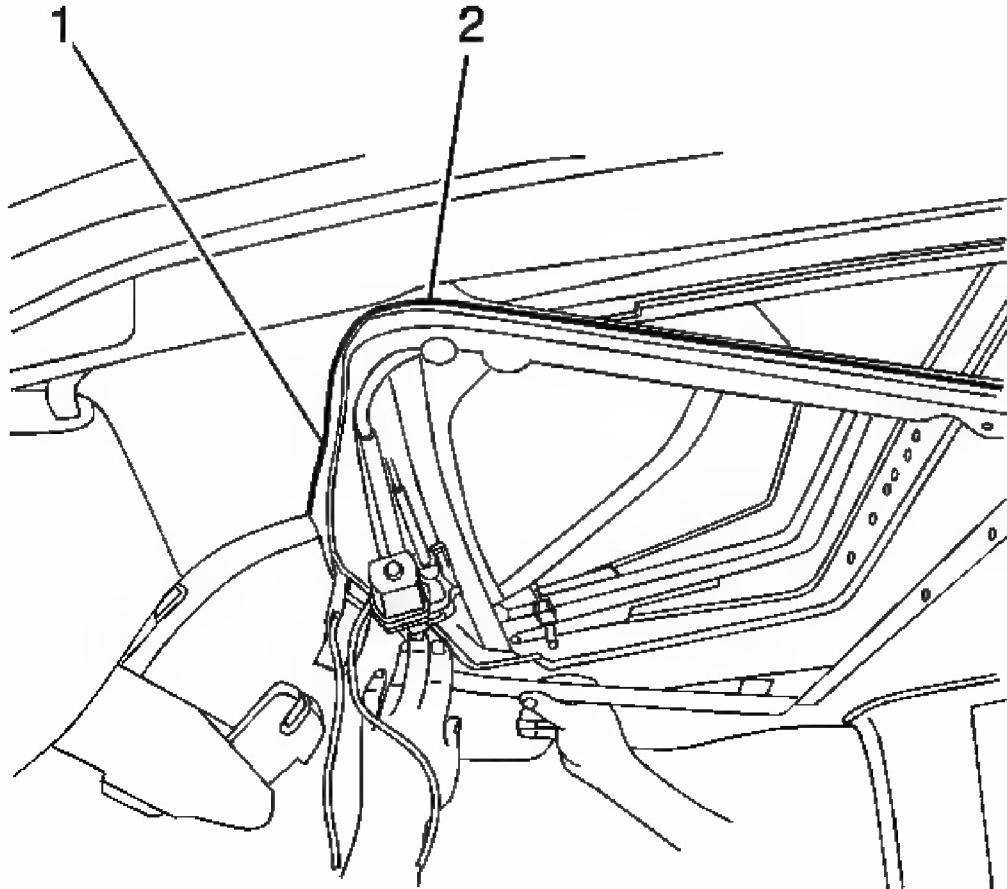
3. Transfer the old sunroof window to the new upper frame assembly.

**Tighten:** Tighten the sunroof window screws to 4.0 N.m (35 lb in).



**Fig. 70: View Of Upper Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

4. Install the upper frame assembly to the outer roof panel.



**Fig. 71: View Of Lower Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

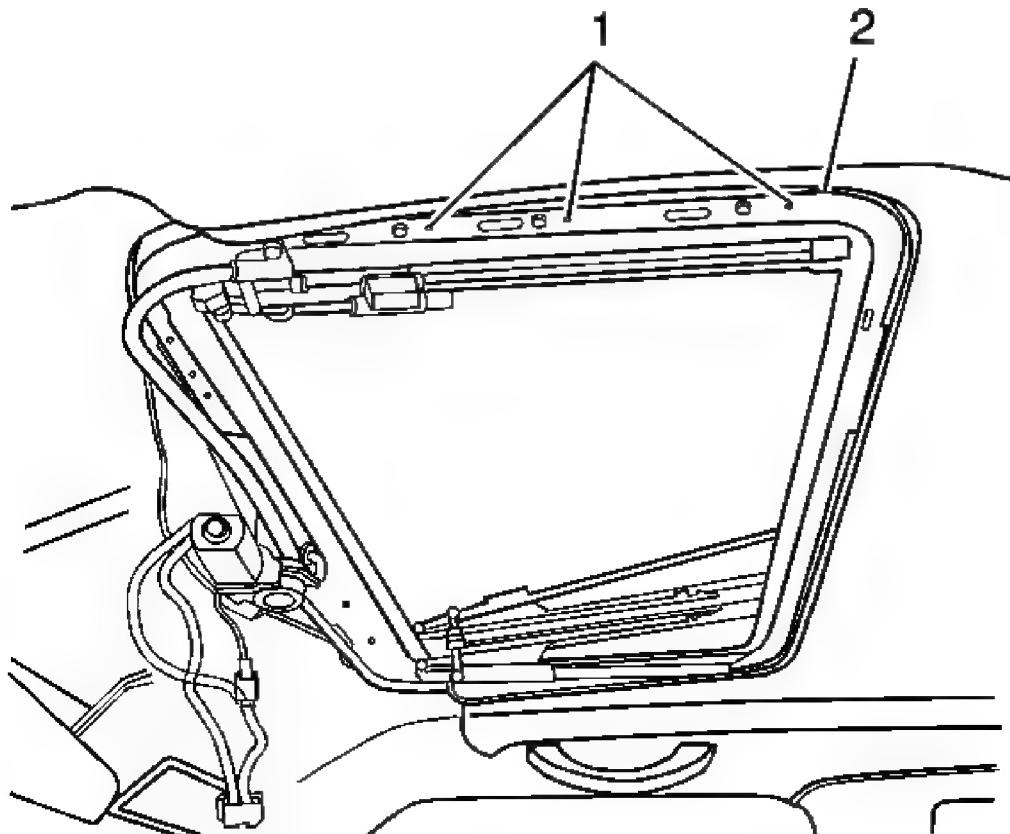
5. Carefully position the lower frame assembly (2) to the headliner and upper frame assembly.
6. Install the screws to the lower frame assembly in order to secure the upper and lower frame assemblies.

**Tighten:** Tighten the lower frame assembly screws to 1.5 N.m (13 lb in).

7. Install the panel window garnish molding. Refer to **Garnish Molding Replacement - Sunroof Panel Window (ZRX/Xtreme w/ CF5)** in Interior Trim.
8. Water test the sunroof assembly. Refer to **Waterleak Test Preparation** in General Information.

**Removal Procedure**

1. Remove the sunroof panel window garnish molding. Refer to [Garnish Molding Replacement - Sunroof Panel Window \(ZRX/Xtreme w/ CF5\)](#) in Interior Trim.

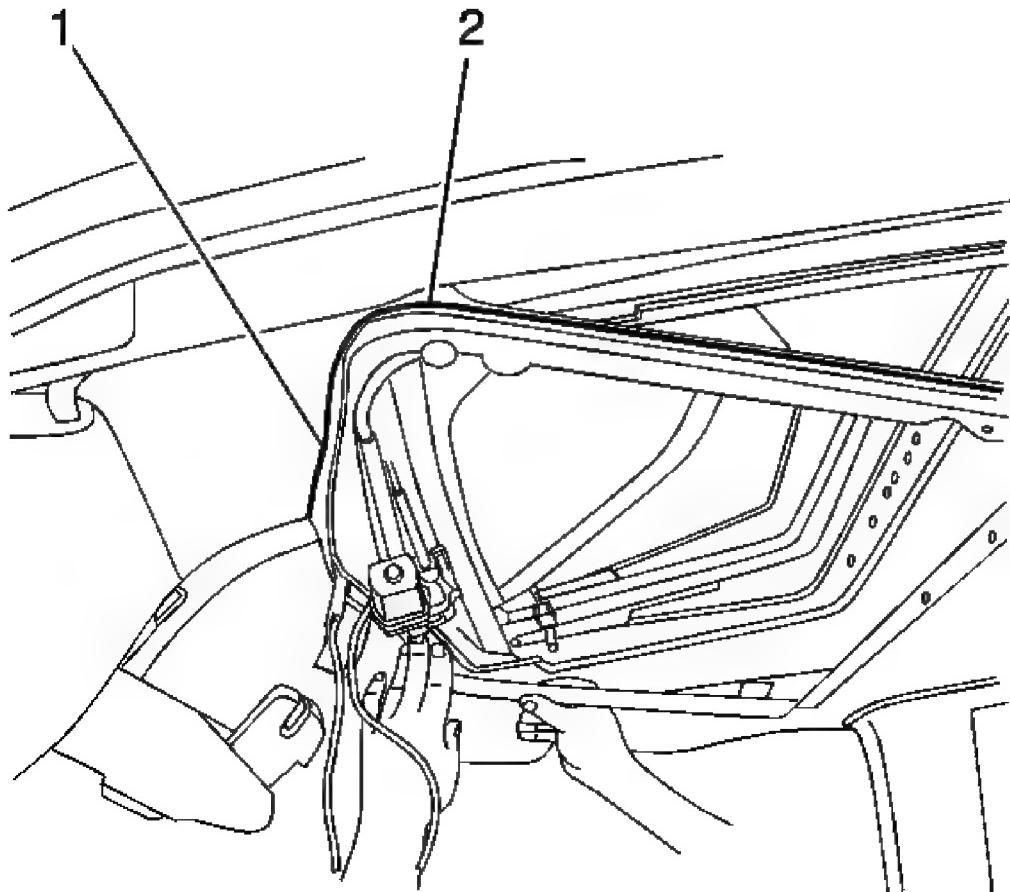


**Fig. 72: Locating Sunroof Window Track Assembly Components**  
Courtesy of GENERAL MOTORS CORP.

2. Remove the screws (1) around the entire periphery of the lower frame (2).
3. Disconnect the electrical connector to the motor.
4. Remove the silver motor screw.

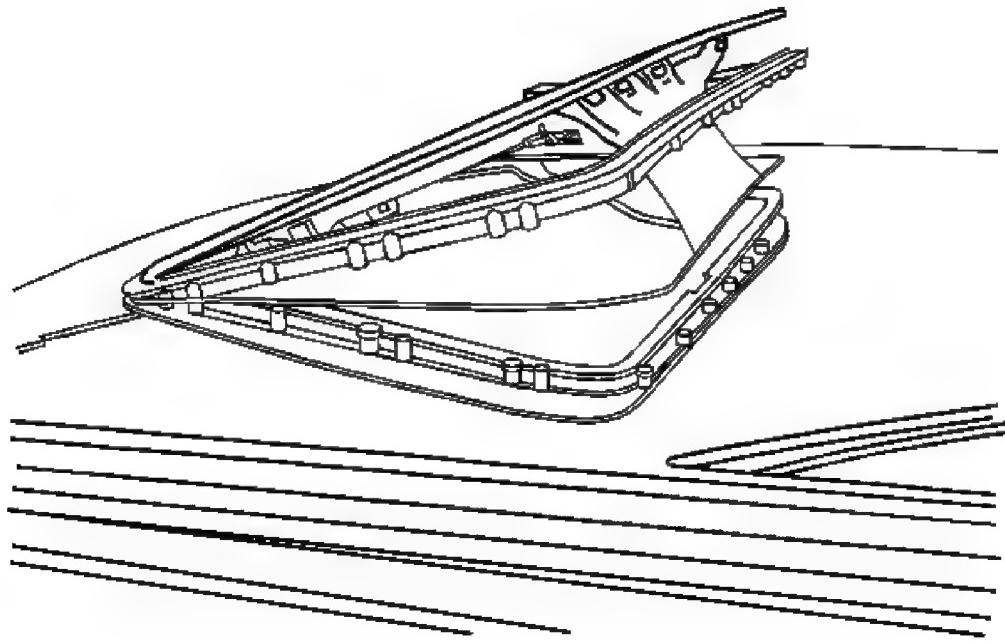
## 2004 Chevrolet S10 Pickup

2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma



**Fig. 73: View Of Lower Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

5. Carefully lower the rear of the frame and work the frame (2) from the front of the headliner.
6. Remove the lower frame (2) from the vehicle.



**Fig. 74: View Of Upper Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

**IMPORTANT:** The upper frame assembly will need to have new foam tape applied to the outer ring prior to assembly. The new foam tape will ensure the sunroof will seal properly upon the lower frame installation.

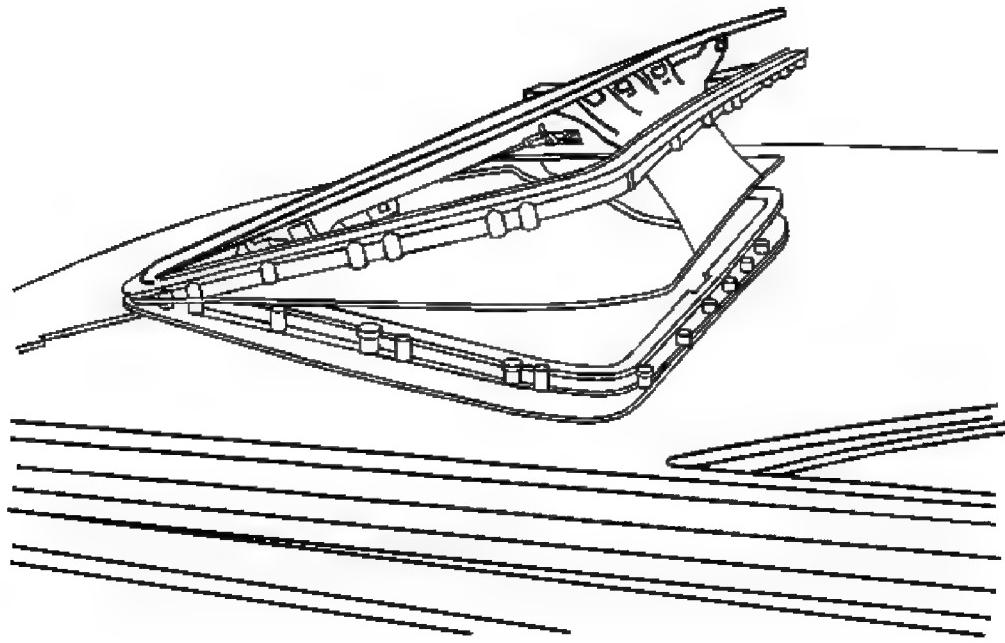
7. Remove the upper frame assembly from the vehicle.
8. Remove the old foam tape and apply new foam tape to the upper frame assembly.

**IMPORTANT:** When applying new foam tape, overlap the foam tape at a screw hole to ensure proper sealing of the screw holes.

9. Remove the sunroof window track assembly. Refer to Sunroof Window Track Assembly Replacement (ZRX/XTREME w/ CF5).

#### **Installation Procedure**

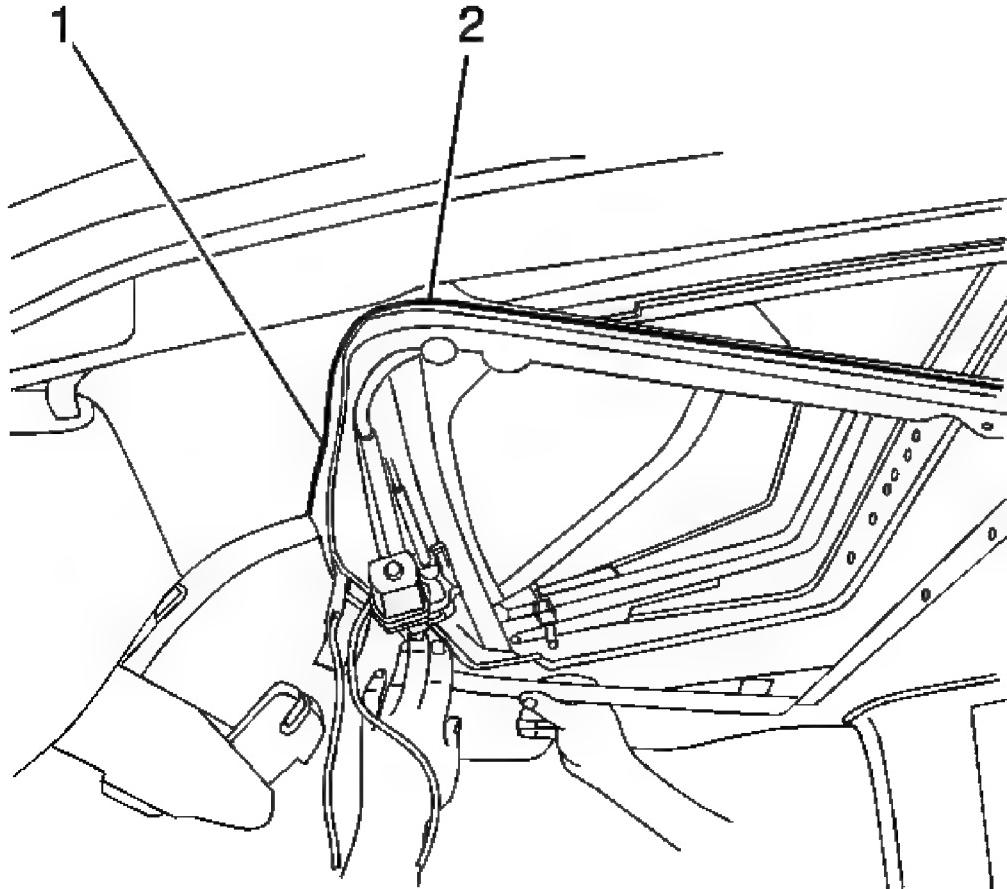
1. Install the sunroof window track assembly to the new frame. Refer to Sunroof Window Track Assembly Replacement (ZRX/XTREME w/ CF5).



**Fig. 75: View Of Upper Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

2. Position the upper frame to the roof panel.
3. Position the lower frame to the upper frame.

**IMPORTANT:** The lower frame front needs to be positioned to the headliner first. Ensure the electrical wiring is positioned away from the upper and lower frame.



**Fig. 76: View Of Lower Frame Assembly**  
Courtesy of GENERAL MOTORS CORP.

4. When the front (2) is positioned, raise the rear of the lower frame into position.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

5. Install the lower to upper frame attachment screws.

**Tighten:** Tighten the screws (1) to 1.5 N.m (13 lb in).

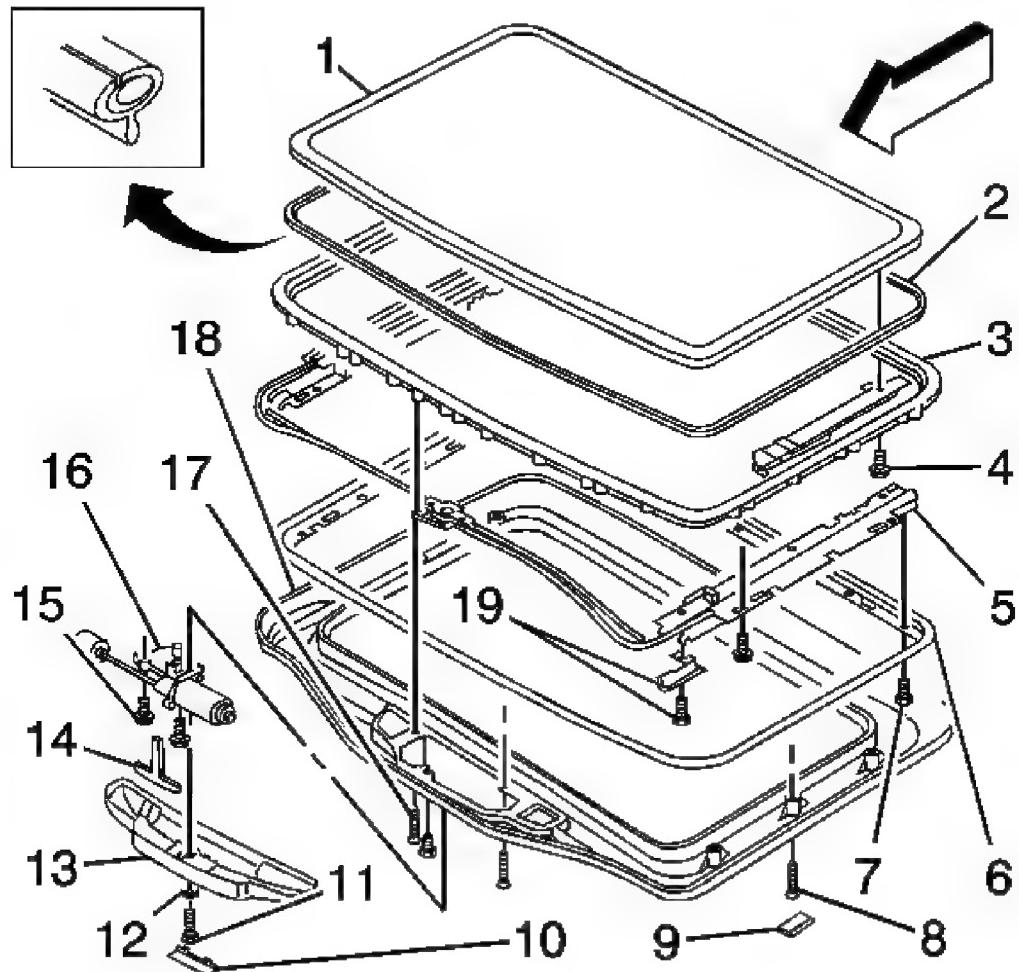
6. Connect the electrical connector to the motor.
7. Install the silver motor screw.

**Tighten:** Tighten the screw to 4.0 N.m (35 lb in).

8. Close the sunroof window.
9. Water test the sunroof assembly.
10. Install the sunroof panel window garnish molding. Refer to **Garnish Molding Replacement - Sunroof Panel Window (ZRX/Xtreme w/ CF5)** in Interior Trim.

### SUNROOF SEAL/MOLDING REPLACEMENT (ZRX/XTREME W/ CF5)

#### Removal Procedure

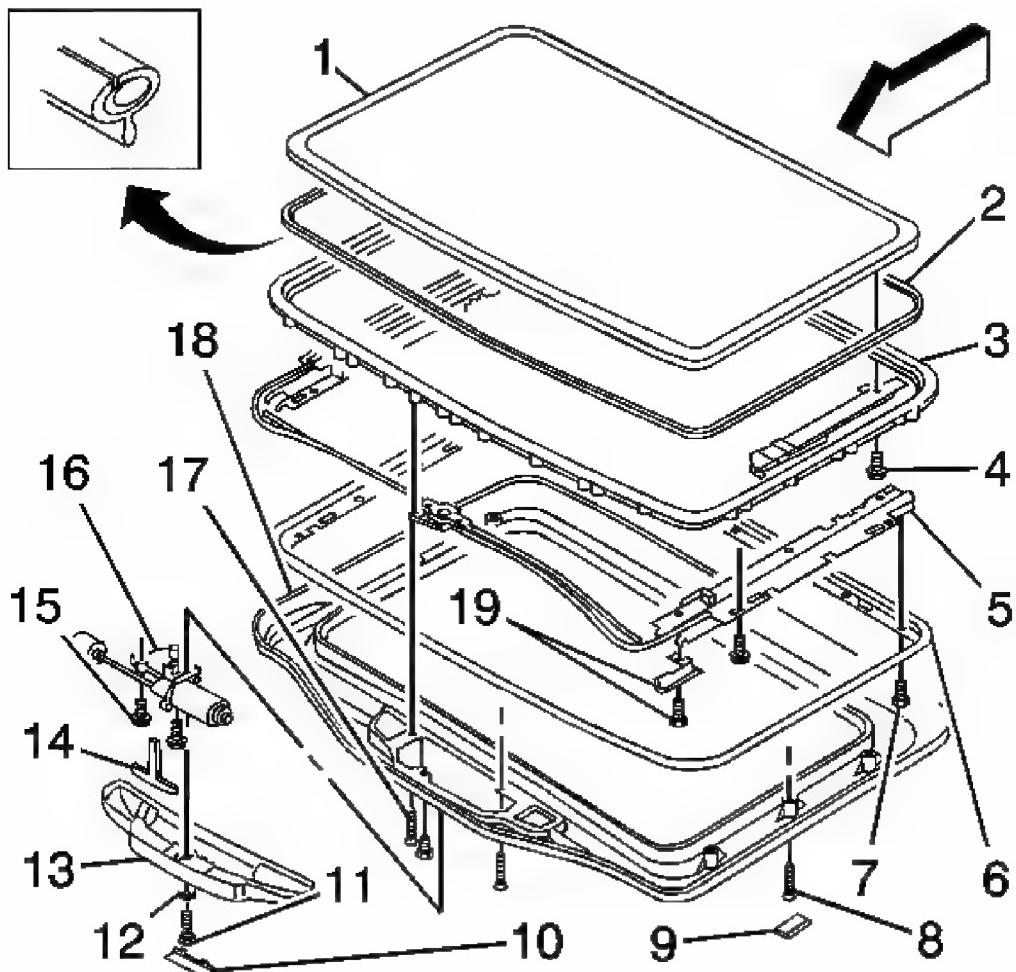


**Fig. 77: Sunroof Disassembled View**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the sunroof window. Refer to **Sunroof Window Replacement (CF5) Sunroof Window Replacement (ZRX/XTREME w/ CF5)**.

2. Remove the seal (2) from the front of the upper frame by pulling upward on the seal.
3. Finish removing the seal from the rear of the mainframe.
4. Completely clean the channel in the mainframe of silicone adhesive and any other debris. A nylon glazing stick or a soft wire brush would be helpful in removing the silicone.

#### Installation Procedure



**Fig. 78: Sunroof Disassembled View**  
Courtesy of GENERAL MOTORS CORP.

1. Apply black, non-corrosive silicone adhesive under the entire outside edge of the seal.
2. Insert the new window seal by pressing the seal into the mainframe channel (3). Use a roller-type tool on the seal to aid in the installation of the seal into the channel.

3. Install the sunroof window. Refer to **Sunroof Window Replacement (CF5)** or **Sunroof Window Replacement (ZRX/XTREME w/ CF5)**.
4. Fully close the sunroof and wait 4-6 hours for the silicone to dry.
5. Visually inspect the window and seal in the full open and closed positions.
6. Open the sunroof.
7. Inspect the seal for high spots, correct if needed.

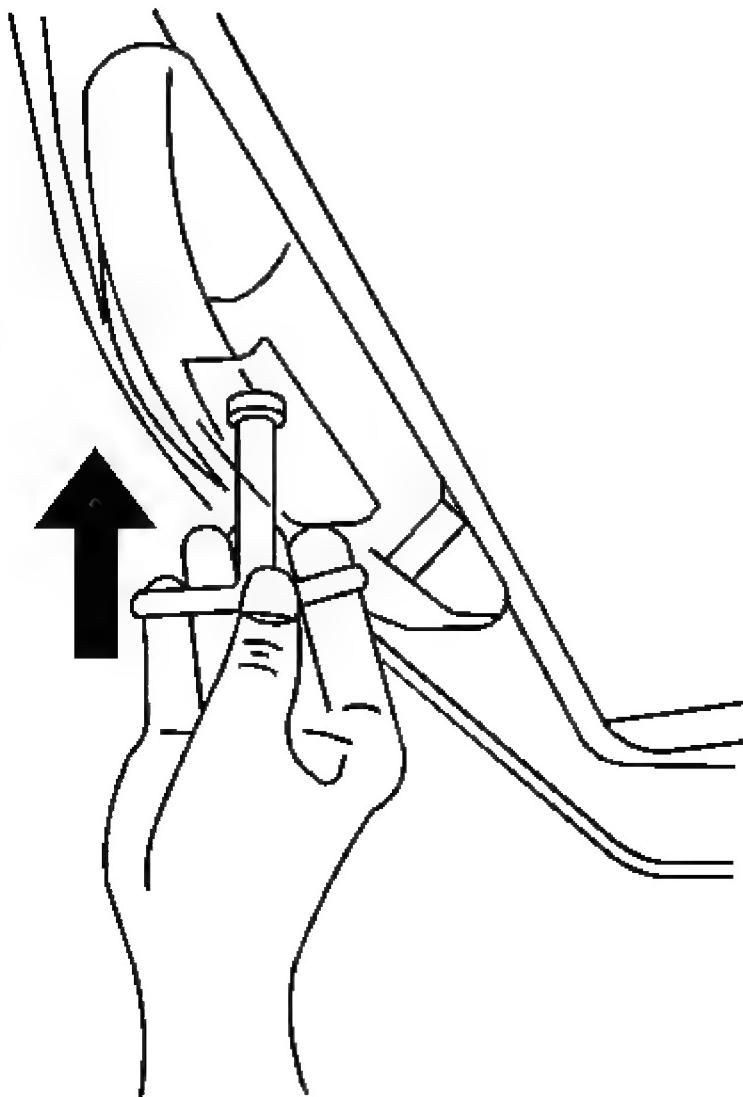
#### **SUNROOF MANUAL OPERATION (ZRX/XTREME W/ CF5)**

#### **Tools Required**

**J 38043** Sunroof T-Wrench. See **Special Tools and Equipment**.

If you are unable to close the sunroof window using the sunroof window switch, refer to **Diagnostic Starting Point - Roof**.

1. Remove the motor/actuator service cover.
2. Locate the sunroof crank supplied in the instrument panel (I/P) compartment.



**Fig. 79: Using Sunroof Crank**  
Courtesy of GENERAL MOTORS CORP.

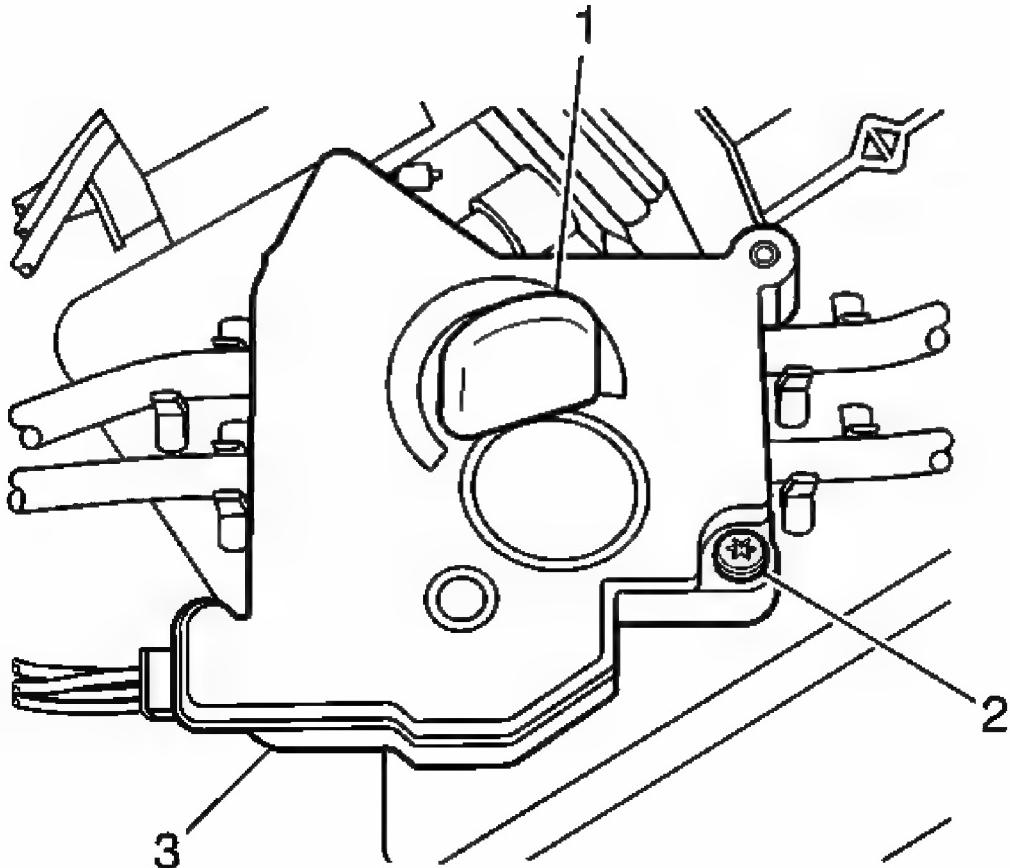
3. With the sunroof crank, insert the small end into the center location slot in the motor/actuator.
4. Turn the sunroof crank, clockwise, until the sunroof window is in the full closed position.
5. Install the motor/actuator service cover.
6. Return the sunroof crank to the I/P compartment.

## **SUNROOF OPENING POSITION SWITCH REPLACEMENT**

### **Removal Procedure**

**IMPORTANT:**

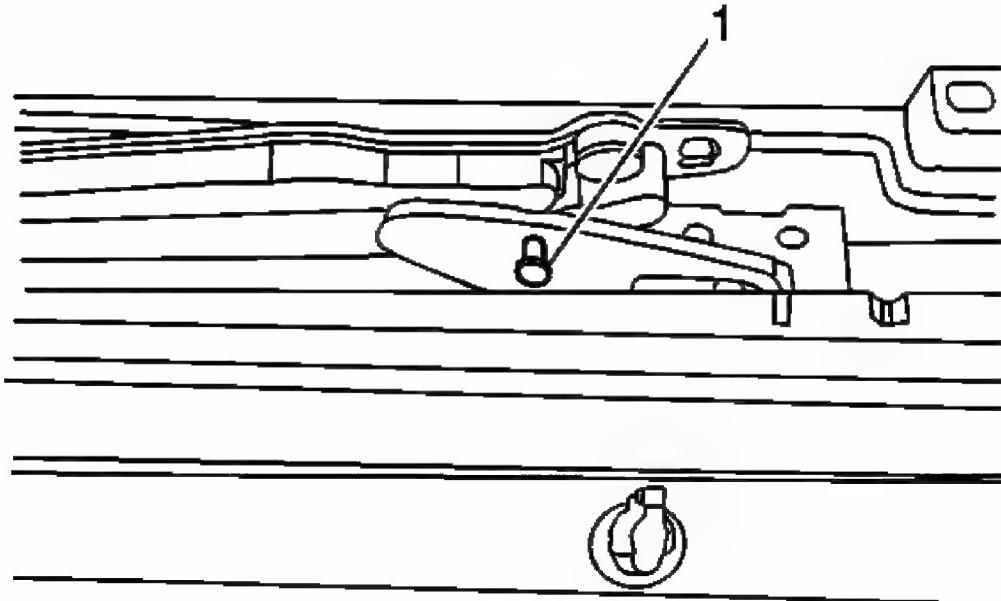
- Remove the headliner. Refer to Headliner Replacement (Pickup) or Headliner Replacement (Utility) in Interior Trim.
  - The sunroof open position (SOP) switch is aligned to the drive cables. The SOP switch comes from the factory set to the sunroof glass panel CLOSED position. A position lock pin has been installed by the factory on the top of the SOP switch. This pin must remain until after the installation of the sunroof actuator and of the SOP switch. This lock pin locks the drive gears in place and must be removed before the complete sunroof module is installed to the vehicle.
  - If the SOP switch is removed for inspection, the sunroof must be in the CLOSED position. A position lock pin must be inserted. If a position lock pin is not available, place 2 wires, such as the ends of a paper clip, in the holes.
1. Move the sunroof to the closed position.
  2. Remove the sunroof window. Refer to Sunroof Window Replacement (CF5) or Sunroof Window Replacement (ZRX/XTREME w/ CF5).
  3. Remove the sunroof control module. Refer to Sunroof Control Module Replacement.



**Fig. 80: Identifying Sunroof Piston Lock Pin, Opening Position Switch & Screw**  
Courtesy of GENERAL MOTORS CORP.

4. If you reuse the SOP switch, insert the position lock pin (1) in order to lock the SOP switch in the closed position.
5. Remove the sunroof motor/actuator. Refer to [Sunroof Motor/Actuator Replacement \(CF5\)](#) or [Sunroof Motor/Actuator Replacement \(ZRX/XTREME w/ CF5\)](#).
6. Disconnect the electrical connector from the SOP switch (3).
7. Remove the screw (2) which secures the SOP switch to the sunroof module.
8. Hold down on both of the drive cables. Lift up on the SOP switch in order to remove the switch from the sunroof module.

#### Installation Procedure



**Fig. 81: View Of Cable Mechanism**

Courtesy of GENERAL MOTORS CORP.

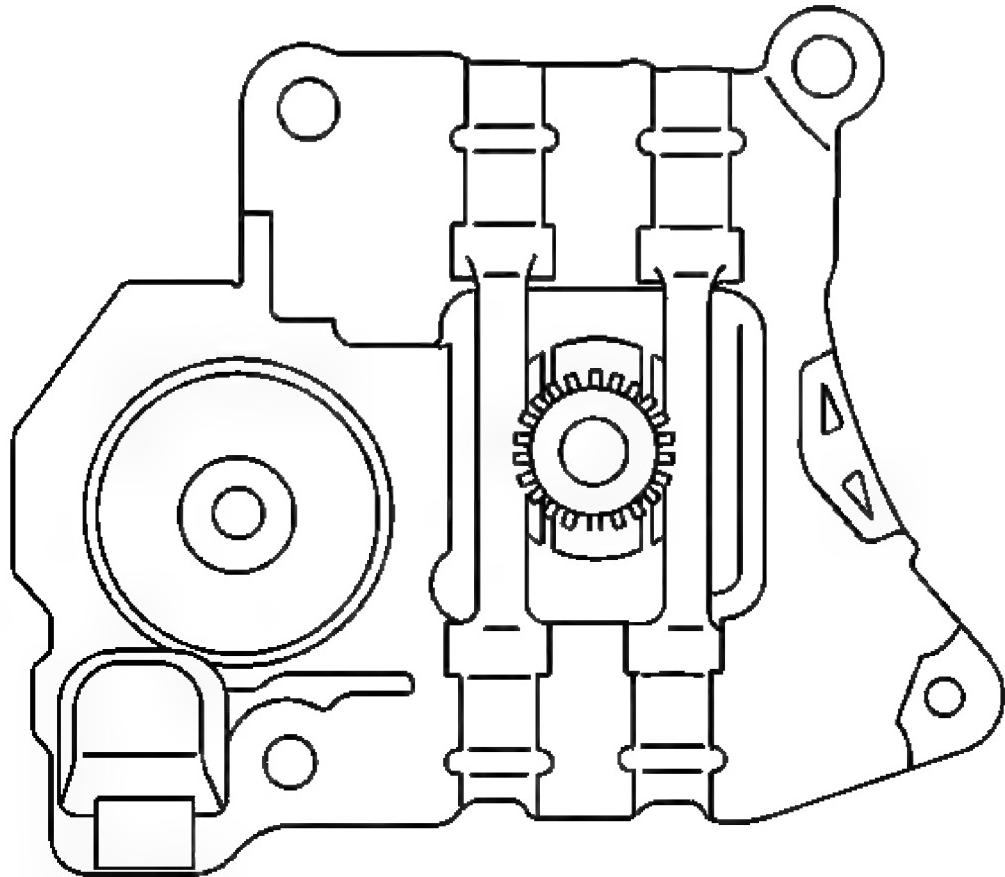
**IMPORTANT:** The cable mechanisms and/or the cam mechanisms, on both sides of the glass, contain a set of timing holes. These holes are aligned in the CLOSED position of the sunroof glass panel. These holes are located on the side opposite the rear screw hole, which is used in order to mount the sunroof glass panel. When installing a new sunroof open position (SOP) switch, set the sunroof glass panel to the CLOSED position.

1. Use a flat-bladed tool if you adjust the cable mechanism and/or the cam mechanism in order to align the cable and/or the cam timing holes.

When the timing holes are aligned, insert a pin with diameter 0.0317 mm (1/8 in) or a drill bit (1) into each set of the timing holes. Use tape in order to hold each pin in place.

**IMPORTANT:** The SOP switch comes from the factory with a position lock pin that is installed on top of the switch. This locks the timing gears in place. Do not remove the position lock pin until after the SOP switch and the actuator are installed.

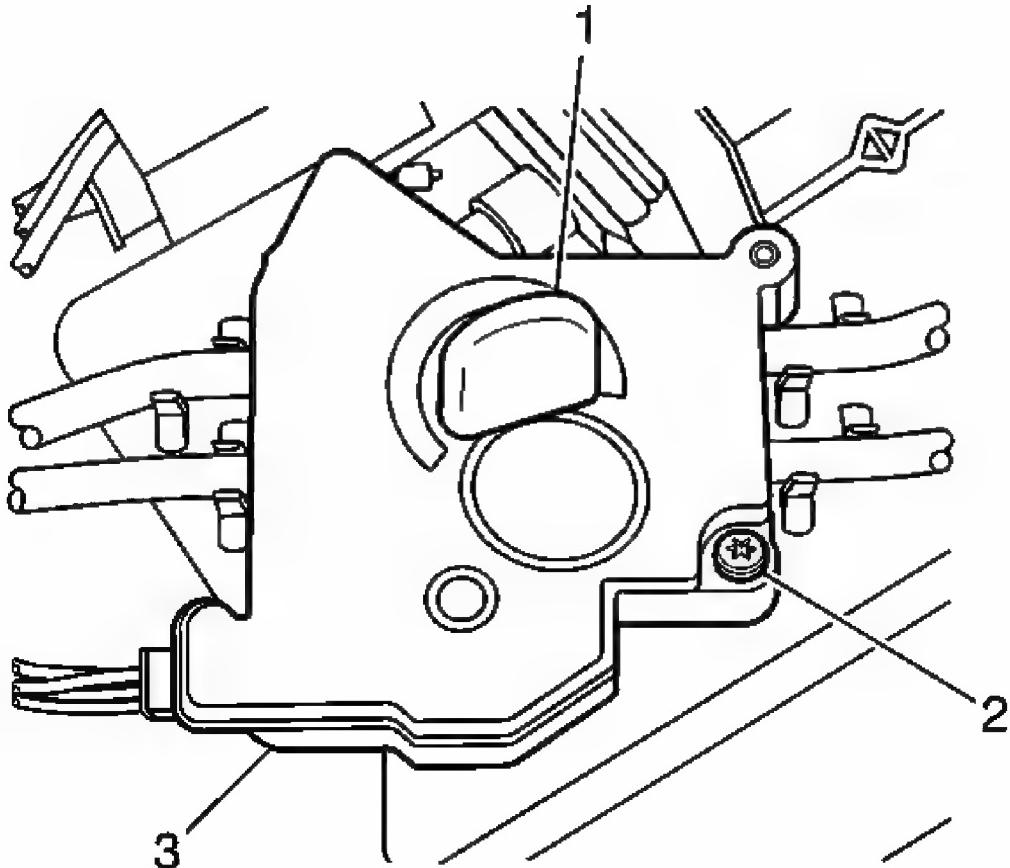
2. Keeping the position lock pin on the new SOP switch, align the switch over the drive cables.



**Fig. 82: View Of Sunroof Opening Position Switch**  
Courtesy of GENERAL MOTORS CORP.

3. Apply pressure to the SOP switch until the switch is completely seated.

If the switch does not slide into position, the ridges on the drive cable housings will not go into the grooves on the back of the SOP switch. Lift each cable into the switch, and press down on the assembly until the assembly is completely seated.



**Fig. 83: Identifying Sunroof Piston Lock Pin, Opening Position Switch & Screw**  
Courtesy of GENERAL MOTORS CORP.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

4. Install the screw which secures the SOP switch to the sunroof module.

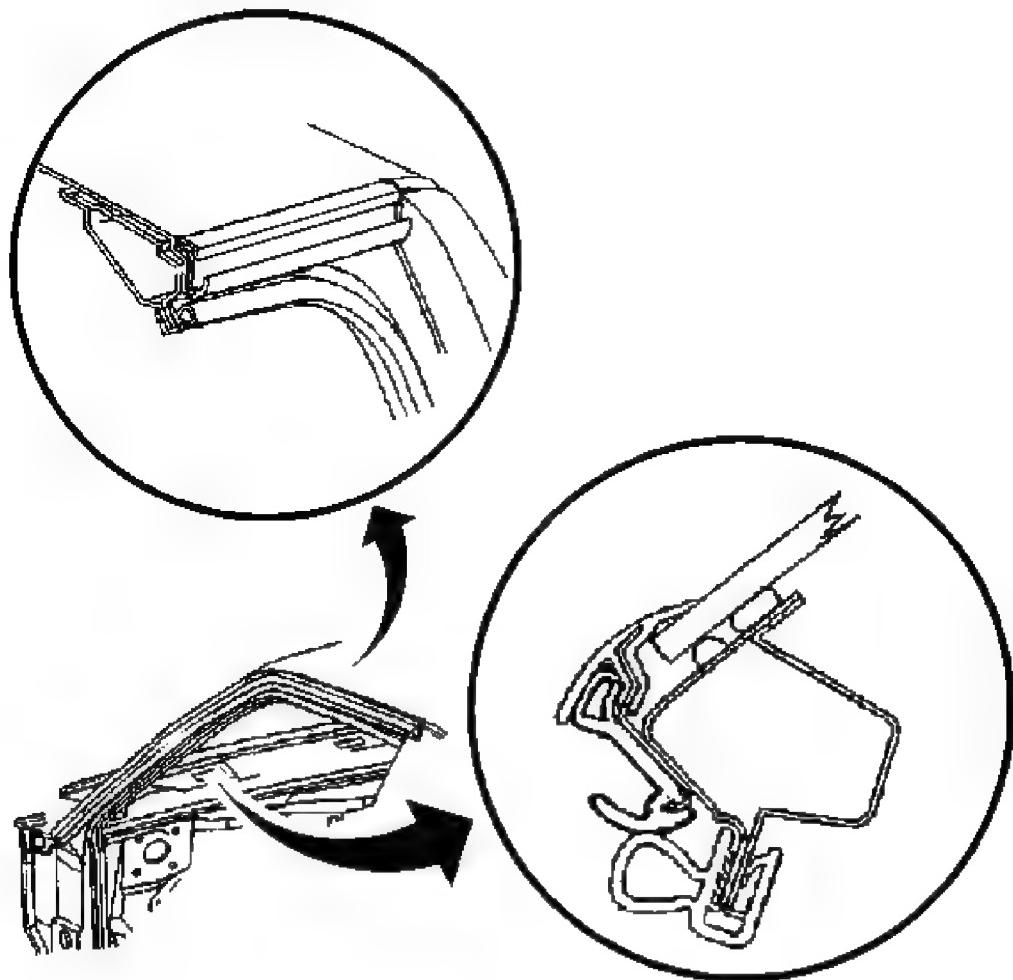
**Tighten:** Tighten the screw to 3.4 N.m (30 lb in).

5. Connect the electrical connector to the SOP switch.
6. Install the sunroof motor/actuator. Refer to [Sunroof Motor/Actuator Replacement \(CF5\)](#) or [Sunroof Motor/Actuator Replacement \(ZRX/XTREME w/ CF5\)](#).
7. Remove the position lock pin (1).
8. Remove the 2 alignment pins from the cable mechanisms and/or from the cam mechanisms.

9. Install the sunroof control module, but do not install the headliner until after the sunroof operation has been verified. Refer to [\*\*Sunroof Control Module Replacement\*\*](#).
10. Verify the operation of the sunroof module.
11. Install the sunroof window. Refer to [\*\*Sunroof Window Replacement \(CF5\)\*\*](#) or [\*\*Sunroof Window Replacement \(ZRX/XTREME w/ CF5\)\*\*](#).
12. Install the headliner. Refer to [\*\*Headliner Replacement \(Pickup\)\*\*](#) or [\*\*Headliner Replacement \(Utility\)\*\*](#) in Interior Trim.

## **WEATHERSTRIP REPLACEMENT - DRIP RAIL**

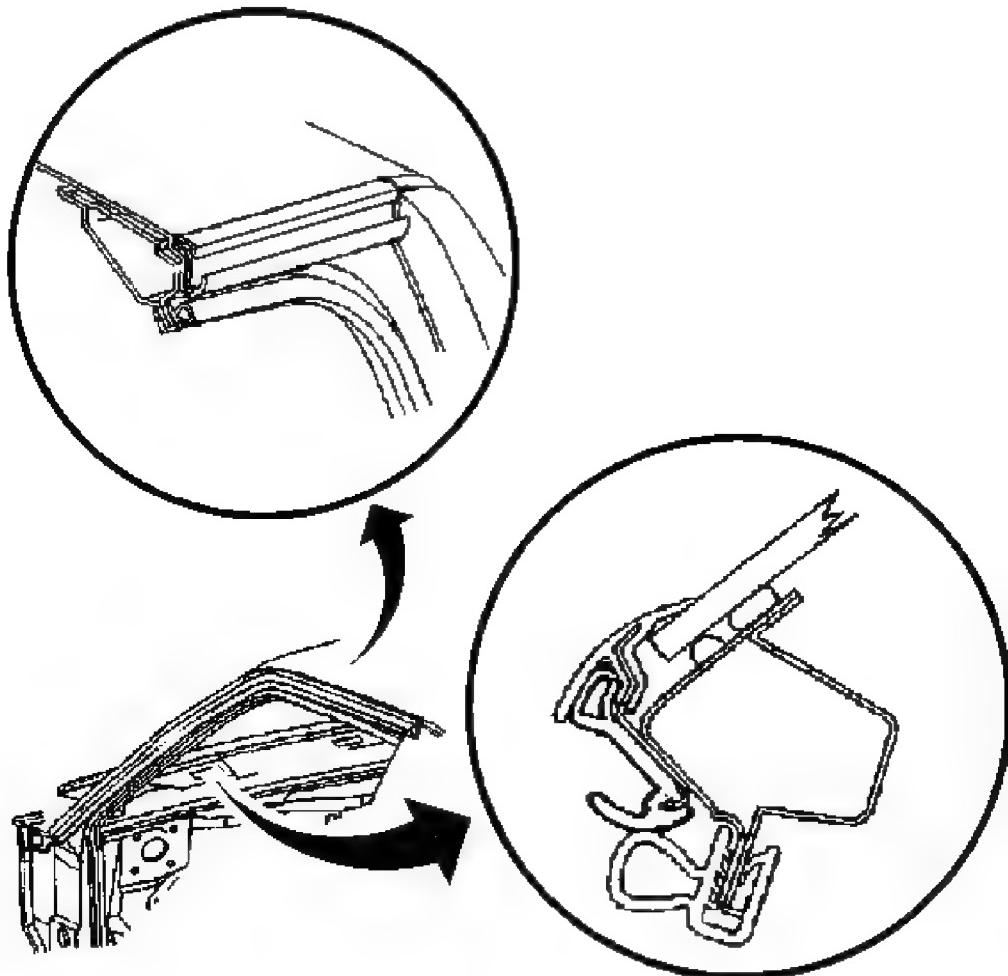
### **Removal Procedure**



**Fig. 84: View Of Roof Drip Weatherstrip**  
Courtesy of GENERAL MOTORS CORP.

1. Pull the roof drip weatherstrip from the door opening frame.
2. Remove any remaining weather strip material or adhesive.

**Installation Procedure**

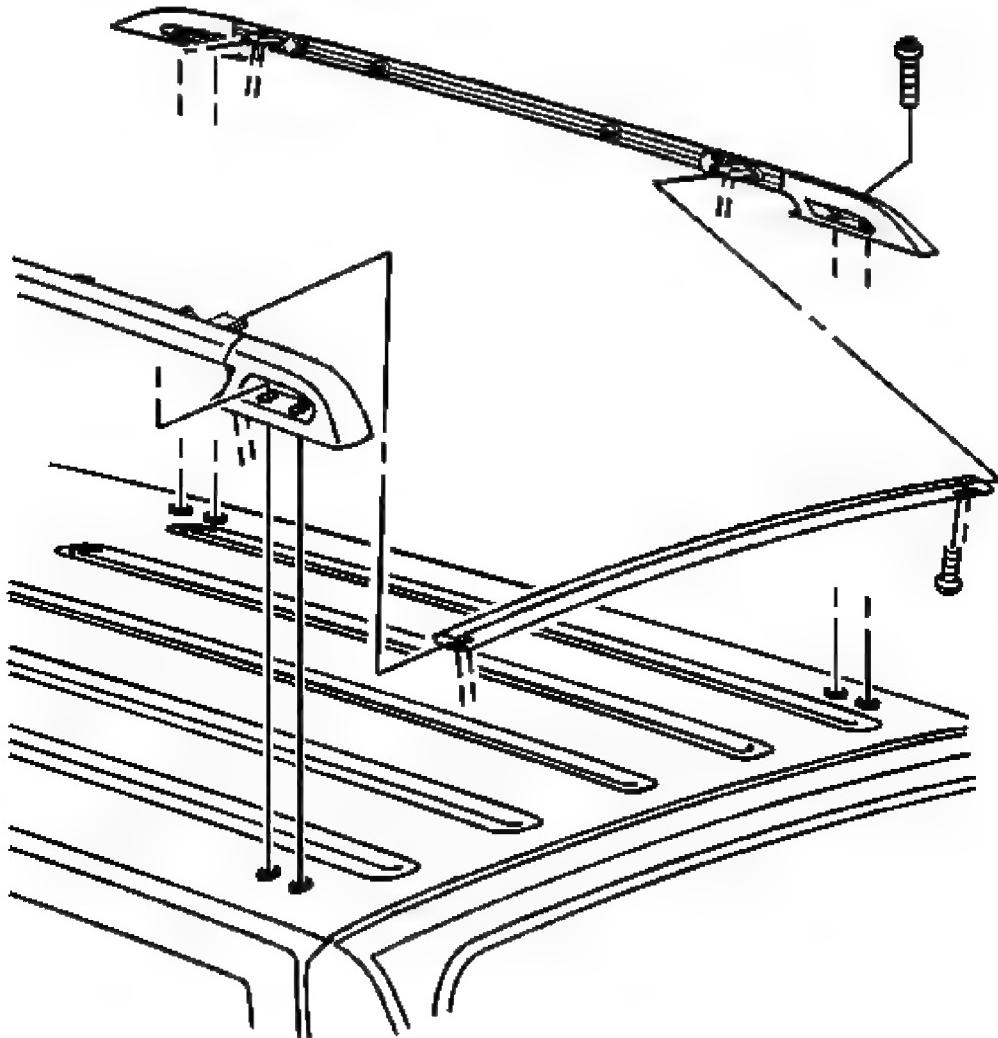


**Fig. 85: View Of Roof Drip Weatherstrip**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the adhesive backing from the weatherstrip.
2. Place the weatherstrip seal at the upper rear corner of the door opening and against the body side outer panel.
3. Install the strip forward along the roof flange and down the windshield revel molding flange.

## **LUGGAGE CARRIER REPLACEMENT**

### **Removal Procedure**

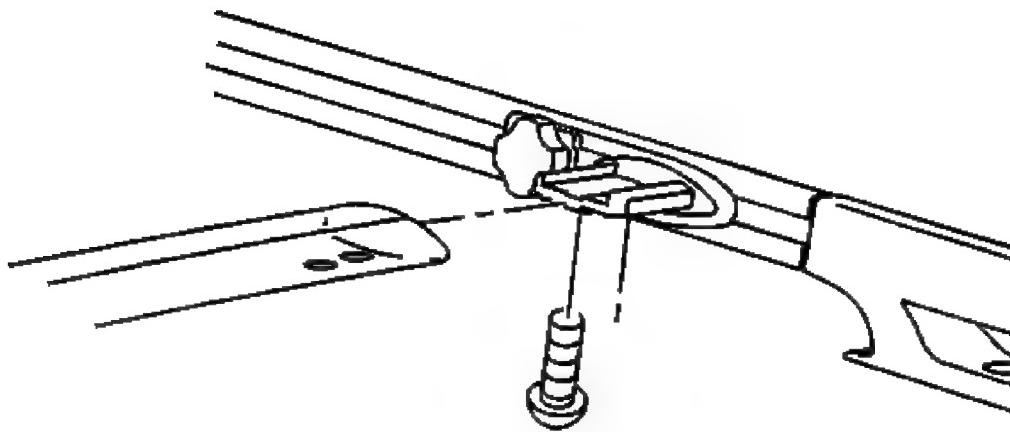


**Fig. 86: View Of Luggage Carrier End Supports**  
Courtesy of GENERAL MOTORS CORP.

1. Remove the screws from the luggage carrier end supports.
2. With an assistant, remove the luggage carrier from the roof as an assembly.
3. Remove the screws from the side rail supports.
4. Remove the side rail supports from the side rails.

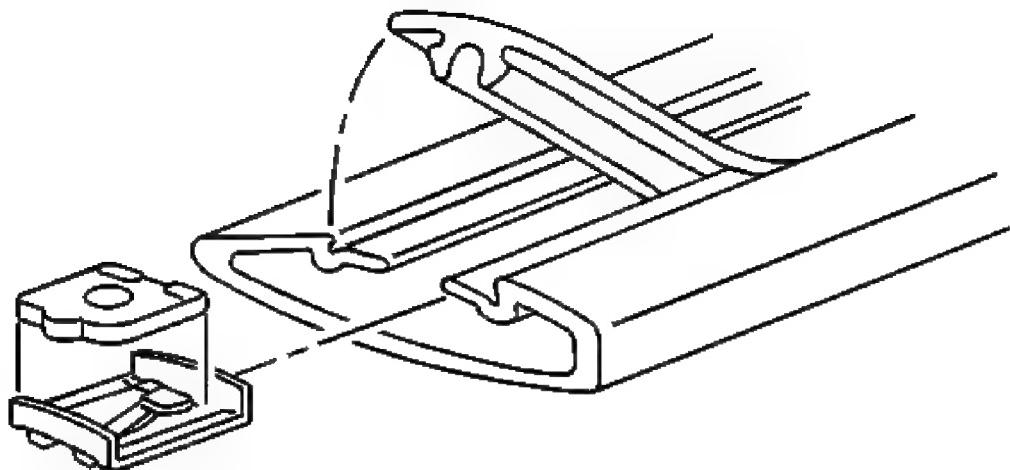
## 2004 Chevrolet S10 Pickup

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**Fig. 87: View Of Cross Rail Screw**  
Courtesy of GENERAL MOTORS CORP.

5. Remove the screws from the cross rails.
6. Remove the cross rails from the sliders.



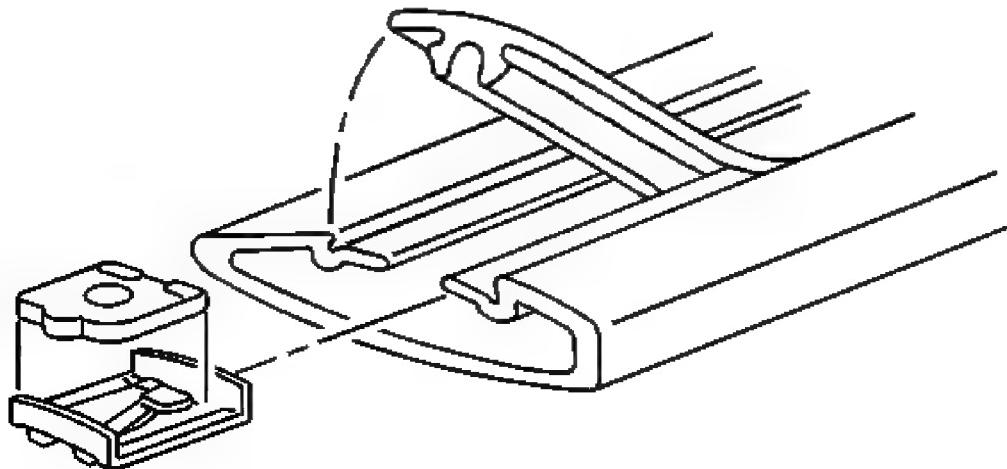
**Fig. 88: View Of Rubber Strip For Cross Bar Assemblies**  
Courtesy of GENERAL MOTORS CORP.

7. Remove the rubber strips from the cross bar assemblies.

8. Remove the tap plates from the cross rails.
9. Loosen the knobs from the sliders and the lock plates in the slide rails.

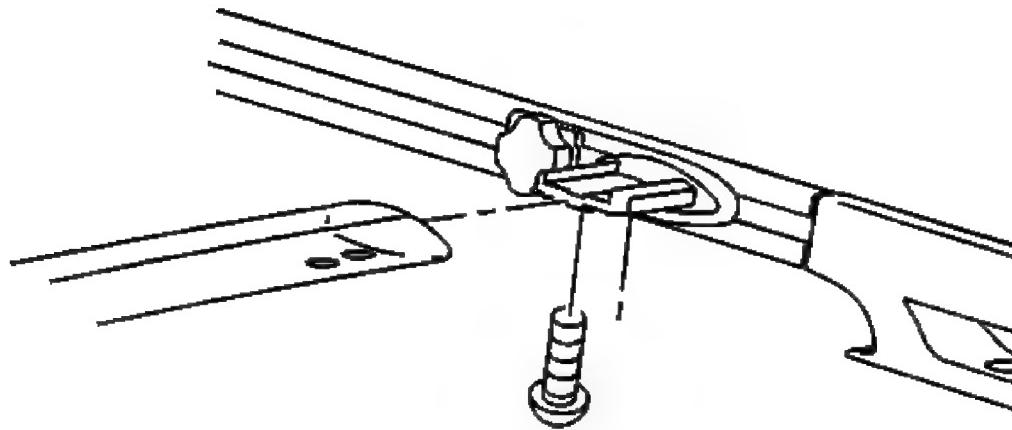
**Installation Procedure**

1. Install the sliders and the lock plates into the slots on the side rails.
2. Hand-tighten the knobs into the sliders and the lock plates.



**Fig. 89: View Of Rubber Strip For Cross Bar Assemblies**  
**Courtesy of GENERAL MOTORS CORP.**

3. Install the tap plates in the cross rails.



**Fig. 90: View Of Cross Rail Screw**  
Courtesy of GENERAL MOTORS CORP.

4. Install the cross rails on to the sliders.

**NOTE:** Refer to Fastener Notice in Cautions and Notices.

5. Install the screws to the cross rails.

**Tighten:** Tighten the screws to 1.9 N.m (17 lb in).

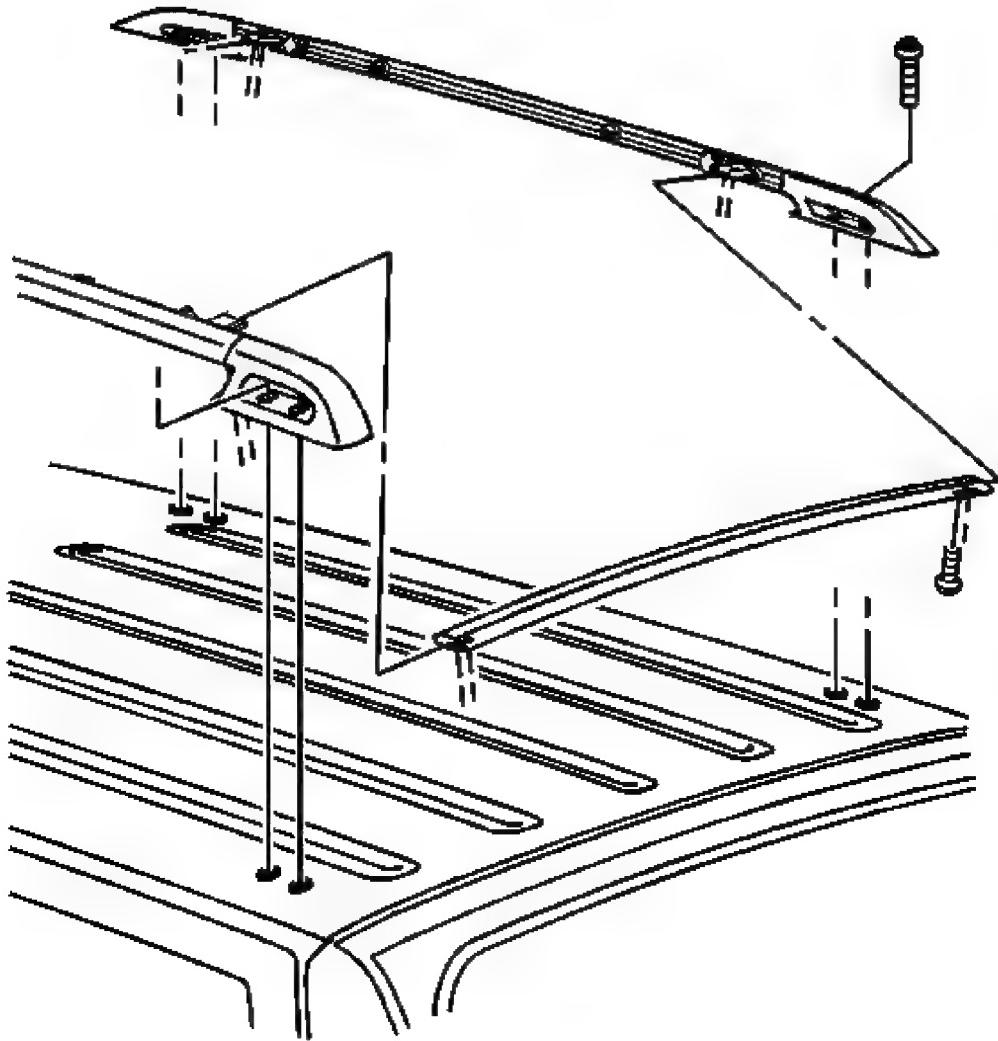
6. Install the side rail supports to the side rails.
7. Install the screws to the side rail supports.

**Tighten:** Tighten the screws to 1.9 N.m (17 lb in).

8. With an assistant, install the luggage carrier as an assembly onto the roof.

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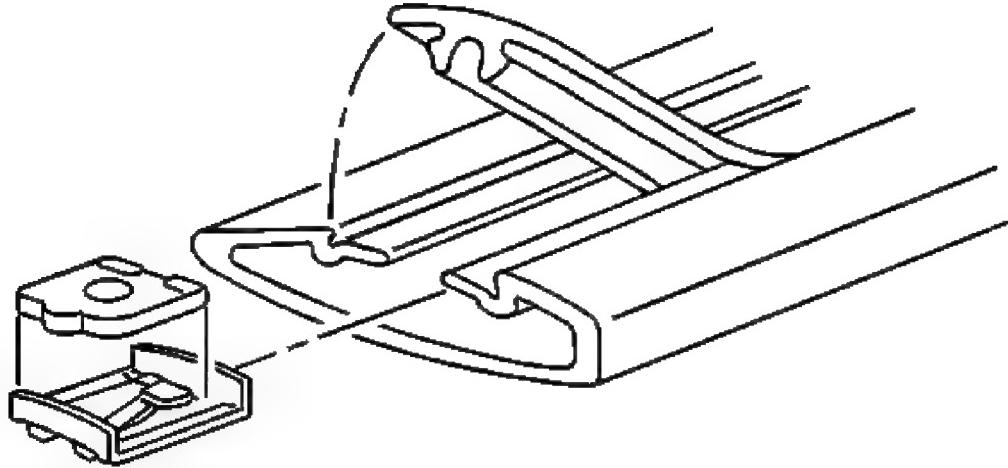
2004 ACCESSORIES & EQUIPMENT Roof - Blazer/S-10, Jimmy/Sonoma



**Fig. 91: View Of Luggage Carrier End Supports**  
Courtesy of GENERAL MOTORS CORP.

9. Install the end support to the roof screws.

**Tighten:** Tighten the screws to 2.8 N.m (25 lb in).



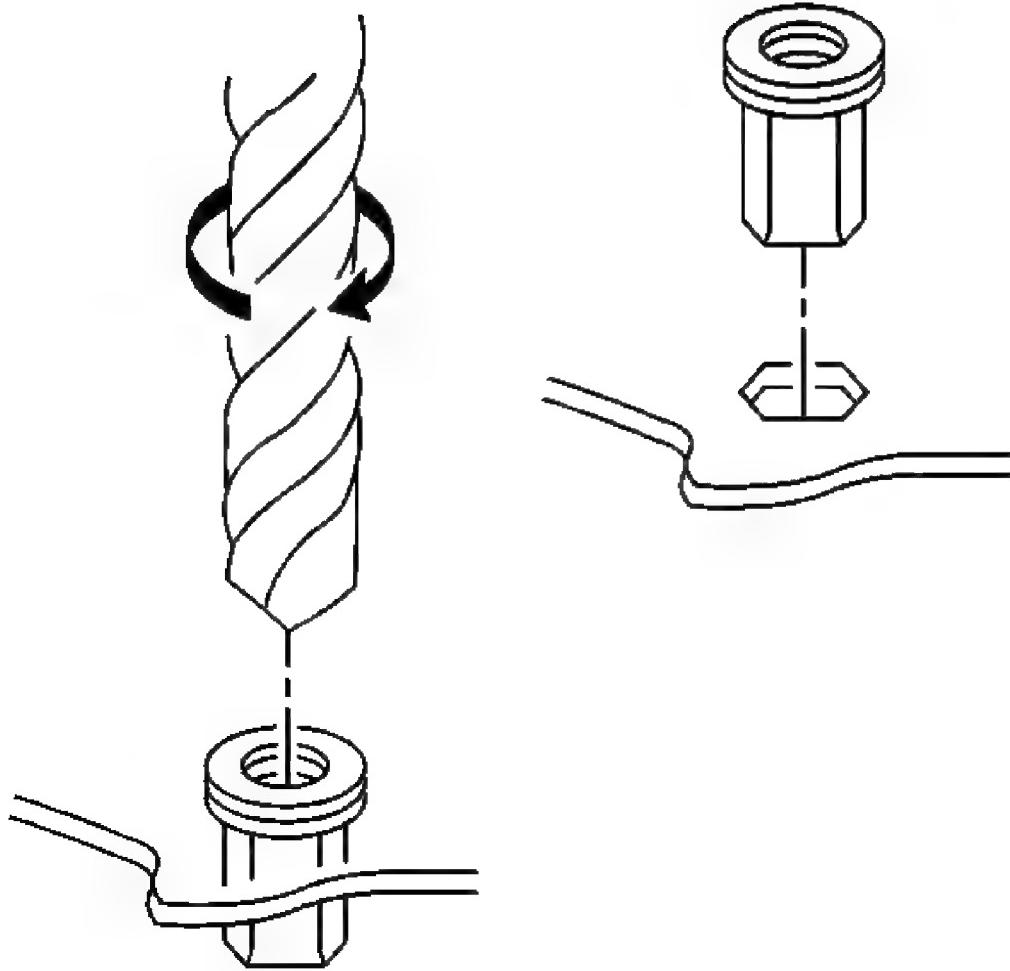
**Fig. 92: View Of Rubber Strip For Cross Bar Assemblies**  
Courtesy of GENERAL MOTORS CORP.

10. Install the rubber strips to the cross bar assemblies.

#### **LUGGAGE CARRIER RIVNUT REPLACEMENT**

##### **Removal Procedure**

1. Remove the luggage carrier. Refer to [Luggage Carrier Replacement](#).



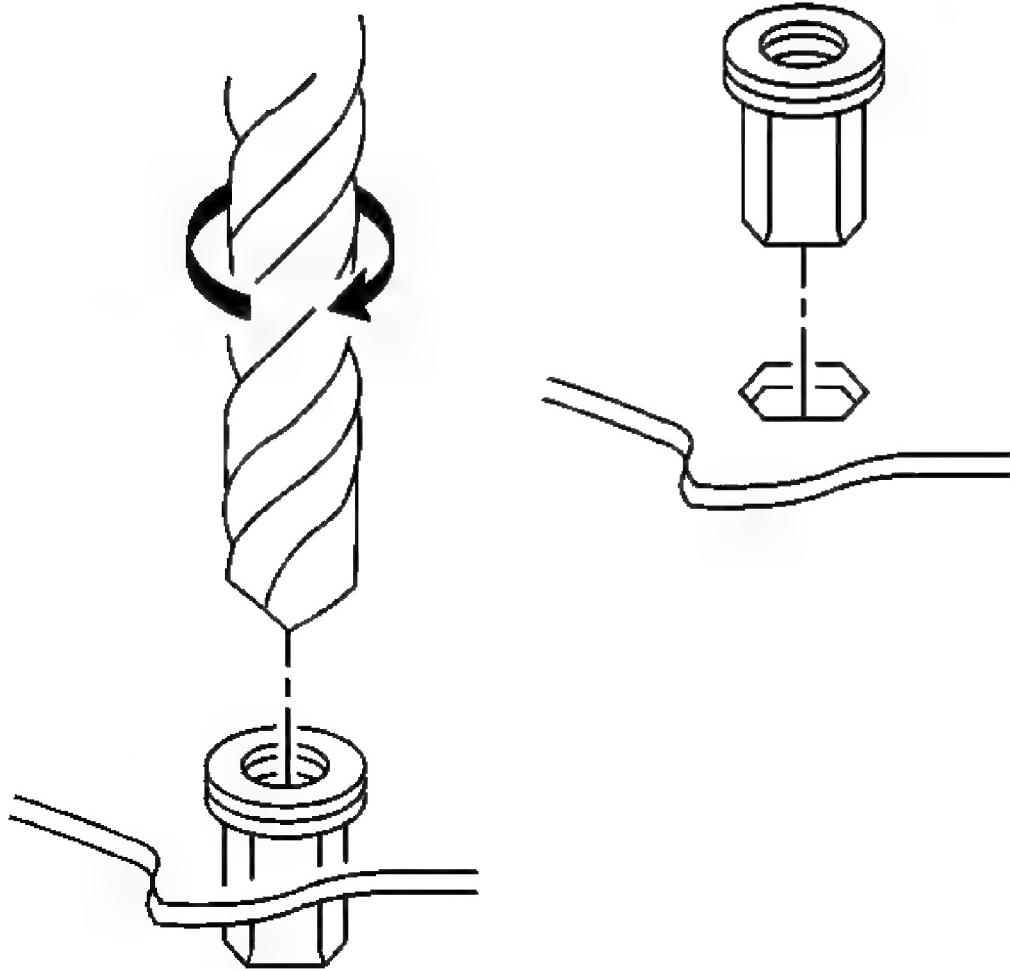
**Fig. 93: View Of Luggage Carrier Rivnut**  
Courtesy of GENERAL MOTORS CORP.

**CAUTION: Refer to Safety Glasses Caution in Cautions and Notices.**

2. Drill through the luggage carrier rivnut head using a 7.5 mm (0.295 in) drill bit.
3. Remove the rivnut from the roof.

#### **Installation Procedure**

1. Use a 10 mm (0.39 in) drill bit to drill the hole in the roof out.



**Fig. 94: View Of Luggage Carrier Rivnut**  
Courtesy of GENERAL MOTORS CORP.

2. Install a replacement rivnut to the hole in roof using a rivnut tool, or equivalent.
3. Install the luggage carrier. Refer to Luggage Carrier Replacement.

## **DESCRIPTION AND OPERATION**

### **SUNROOF DESCRIPTION AND OPERATION (BEFORE VIN 209983)**

The power sunroof (CF5 option) has the following features:

- A manually operated sunshade. A recess is provided in the sunshade to be used to push the shade open or pull it shut.

- An express module at the front of the sunroof module, allows the window panel to stop in the closed, vent and fully open positions.
- The position encoding system (PES) module contains the limit switches for the window panel operation. Its gearing drives the window into the desired position. The window panel must be in the closed position when this unit is replaced.
- The sunroof actuator attaches to the PES module and contains the driveshaft that drives the gearing in the PES. This driveshaft will turn infinitely in both directions.
- The power sunroof switch is a 2 position rocker type switch which electrically operates the power sunroof. The switch is located in the headliner in front of the sunroof. Press and hold the front indent position to move the sunroof glass to the vent position. Press and hold rear indent and the sunroof will return to the full closed position.

Press rear indent once and the sunroof glass will slide to the full open position automatically (express open).

Press and hold the front indent position on the control switch in order to close the sunroof window from the open position. The switch must be held until the window reaches a desired position or until it closes completely.

- A drain trough is positioned under the sunroof glass panel. Water is collected by this trough and is drained off by drain hoses connected at each corner.
- The glass panel seal fits around the glass panel and is used to seal the opening between the glass panel and the roof panel.
- The sunroof electrical harness is routed to join the body harness at the right rear pillar.

#### **Power Sunroof System Components**

The power sunroof system consists of the following components:

- Actuator/motor
- Sunroof control module
- Sunroof limit switches (position encoding system [PES] module)
- Sunroof switch
- Sunroof glass (tilt/slide type, with glass sliding between roof and headliner)
- Sunshade
- Rail and track assembly upon which the sunroof glass rides
- Power supply for the sunroof module: PWR WINDOWS PWR SUN ROOF 30 A circuit breaker
- Ground from G402

#### **Power Sunroof Operation**

The power sunroof will operate with the ignition switch turned to Accessory or RUN. Once the ignition switch is turned to OFF the sunroof will continue to operate until any door is open or when the retained accessory power (RAP) has timed out. For a description and operation of the RAP system, refer to **Retained Accessory Power (RAP) Description and Operation** in Retained Accessory Power.

Use the rocker type sunroof switch, located in the front center of the headliner, to command the sunroof to :

- Vent
- Express open
- Close

Pressing the sunroof switch (rearward portion), the sunroof glass will slide from:

- Vent position to the closed position
- Closed position to the open position

Pressing the sunroof switch (forward portion), the sunroof glass will slide from:

- Open position to the closed position
- Closed position to the vent position

#### **To Vent Open**

To open the power sunroof to the vent position from the closed position, turn the ignition to ON, with engine OFF. Press and hold the sunroof switch (forward portion). This will apply the sunroof switch low reference to the sunroof switch close signal circuit (5 volt reference) input to drop to 0 volts. As long as the sunroof module sees a constant input request from the sunroof switch close signal circuit (0 volts), the module will continue to raise the rear of the glass upward to the full vent position. The sunroof glass will stop (soft stop) at the full vent position based on the inputs from the limit switches. To stop the sunroof glass in a position other than the full vent position, release the sunroof switch when the sunroof glass reaches the desired vent position. The sunshade will have to manual slid open.

#### **To Close from Vent Position**

To close the power sunroof from the vent position, turn the ignition ON, with the engine OFF. Press and hold the sunroof switch (rearward portion). This will apply the sunroof switch low reference to the sunroof switch open signal circuit (5 volt reference) input to drop to 0 volts. As long as the sunroof module sees a constant input request from the sunroof switch open signal circuit (0 volts), the module will continue to lower the rear of the glass (downward) to the closed position. The sunroof glass will stop (soft stop) at the closed position based on the inputs from the limit switches. The sunshade will have to be manually slid closed.

**Express Open**

The express open will work only with the glass in between the closed and partially open positions. To express open the power sunroof, turn the ignition ON, with engine OFF. Press the sunroof switch (rearward portion) once (less than 1.5 seconds). This will apply the sunroof switch low reference to the sunroof switch signal open signal circuit (5 volt reference) input to drop to 0 volts momentarily. The momentary 0 volts input to the sunroof control module indicates an express open request. The sunroof glass will lower slightly, then begin to automatically slide (express open) between the roof and headliner, allowing the wind deflector to raise upward. The sunroof glass will stop (soft stop) at the full open position based on the inputs from the limit switches. As the sunroof glass expresses open so will the sunshade. To stop the sunroof glass in a desired position other than to the express open position:

- As the sunroof is expressing open, press the sunroof switch again (in either direction) to stop the movement.
- Instead of momentarily pressing the sunroof switch to express open, maintain pressing (more than 1.5 seconds) the sunroof switch (rearward portion). When the sunroof glass reaches the desired position, then release the switch.

**To Close from Open Position**

To close the power sunroof from the open position is the same as to opening the sunroof glass to the vent position. Turn the ignition ON, with the engine OFF. Press and hold the sunroof switch (forward portion). This will apply the sunroof switch low reference to the sunroof switch close signal circuit (5 volt reference) input to drop to 0 volts. As long as the sunroof module sees a constant input request from the sunroof switch close signal circuit (0 volts), the module will continue to slide the sunroof glass to the closed position. The sunroof glass will stop (soft stop) at the closed position based on the inputs from the limit switches. The sunshade will have to be manually slide closed.

**Sunroof Motor**

The sunroof has a bi-directional motor. When the motor is not operating both circuits are grounded. When the motor drives the sunroof glass in the direction from the vent to closed or closed to open position, the following occurs:

- Voltage is supplied to the sunroof motor feed open circuit.
- Ground is maintained to the sunroof motor feed close circuit.

When the motor drives the sunroof in the direction from the open to closed or closed to vent position, the following occurs:

- Voltage is supplied to the sunroof motor feed close circuit.
- Ground is maintained to the sunroof motor feed open circuit.

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The sunroof module is equipped with a timer circuit which stops the operation of the sunroof motor after 8 seconds.

#### **Limit Switches**

The limit switches are part of the position encoding system (PES) that tracks the position of the glass through the limit switches and understands the limits (soft stops) of travel to the:

- Full vent position
- Full open position

The sunroof control module monitors the limit switches (PES). As a limit switch closes, the sunroof limit switch circuit 5 volt reference will be shorted to the sunroof limit switch low reference circuit, pulling the reference voltage to 0 volts. The sunroof control module understands the position of the sunroof glass based on the multiple input combinations through the limit switch inputs, which brings the sunroof glass to a soft stop when it reaches the full vent or full open positions and when it has reached the closed position.

#### **Sunroof Maintenance**

1. Clean the surface of the window by wiping with a clean, dampened cloth using GM Window Cleaner GM P/N 10500427 or equivalent.
2. Apply a silicone lubricant GM P/N 12345579 or equivalent (Canadian P/N 1974984) in order to perform the following functions:
  - Prolong the weatherstrip life
  - Help to seal the weatherstrip
  - Assist in eliminating squeaks

## **SUNROOF DESCRIPTION AND OPERATION (ZRX/XTREME)**

#### **Power Sunroof System Components**

The power sunroof system consists of the following components:

- Sunroof actuator motor
- Sunroof switch
- Sunroof window-spoiler type, with window sliding above the roof
- Rail and track assembly upon which the sunroof window rides
- Rear wiper 15 A
- Ground G300

#### **Power Sunroof Operation**

The sunroof switch receives power through the accessory voltage circuit from the rear wiper

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fuse. The power sunroof will operate with the ignition switch turned to RUN. The sunroof switch also receives a constant ground from G300. Use the sunroof switch, located in the front center of the headliner, to command the sunroof window to:

- Open
- Close

### To Open

Press and hold the rearward portion of the sunroof switch firmly, to the open position. The sunroof switch will apply the accessory voltage through to the sunroof motor open control circuit to the sunroof actuator motor. The sunroof switch will also supply the ground circuit to the sunroof motor close control circuit to the sunroof actuator motor. The rear edge of the sunroof window will raise upward and then slide rearward until it reaches a hard stop at the full open position, unless the sunroof switch is released.

### To Close

Press and hold the forward portion of the sunroof switch to the close position. The sunroof switch will apply the accessory voltage through to the sunroof motor close control circuit to the sunroof actuator motor. The sunroof switch will also apply the ground circuit to the sunroof motor open control circuit to the sunroof actuator motor. The sunroof window will slide to the close position and will hard stop at the close position, unless the sunroof switch is released.

### Sunroof Switch

The sunroof switch has three positions:

- Close
- Off, in rest position
- Open

Pressing the forward portion of the sunroof switch will slide the sunroof window to the close position. Pressing the rearward portion of the sunroof switch will raise the rear edge of the sunroof window and then will move the sunroof window from the close position to the full open position, unless the switch is released.

## SPECIAL TOOLS AND EQUIPMENT

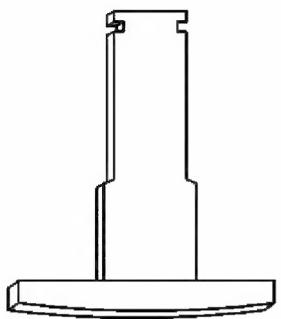
### SPECIAL TOOLS

#### Special Tools

Illustration	Tool Number/ Description

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**J 38043**  
**Sunroof T-Wrench**